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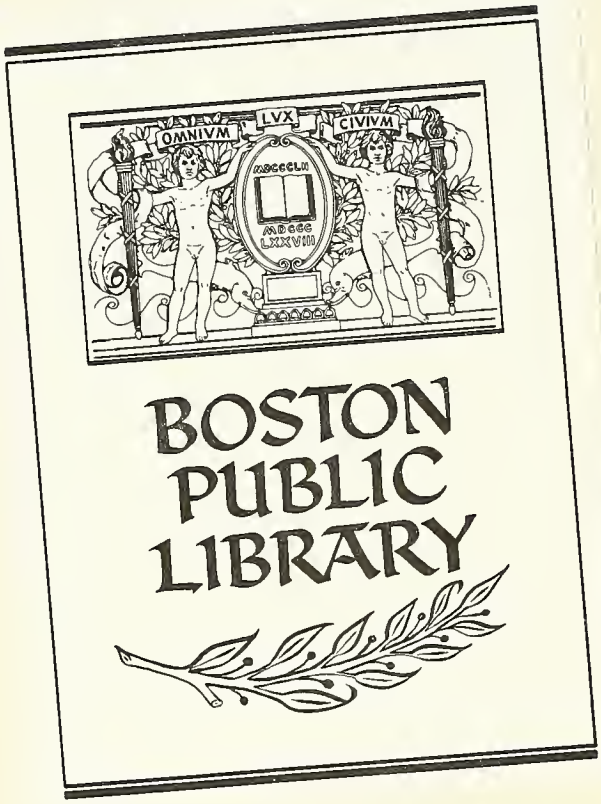

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MARKETABILITY ANALYSIS

For the

SOUTHWEST CORRIDOR STUDY AREA

Boston, Massachusetts

Phase I

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MARKETABILITY ANALYSIS

For the

SOUTHWEST CORRIDOR STUDY AREA

Boston, Massachusetts

Phase I

February, 1970

Robert Gladstone and Associates
Economic Consultants
Washington, D. C.

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AND ASSOCIATES
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WASHINGTON, D. C. 20006 298-6141

February 28, 1970

Mr. Rick Kuner
Boston Redevelopment Authority
City Hall, Room 842
1 City Hall Square
Boston, Massachusetts 02201

Dear Mr. Kuner:

Submitted herewith is our preliminary marketability report as called for in contract with the Boston Redevelopment Authority dated January 6, 1969. The specific assignment was to appraise the differential impact of an embanked as compared to a depressed transportation corridor design for the Southwest Corridor Study Area. The report contains our analysis of the differential impact as called for in our agreement and shown on maps attached subsequently. Further, four alternative land use plans were analyzed in terms of associated market demand and the supply of land and/or air rights.

This Phase I analysis includes overall demand and supply considerations associated with the varying design of the transportation corridor on the Southwest Corridor Study Area. Specific parcel analysis requires site input from planners currently under contract to plan parcels in the Southwest Corridor Study Area. The parcel analysis will thus be conducted in the Phase II stage of this study.

The preparation of this report began in January of 1969 and a Part A submission entitled The Southwest Corridor Study Area -- Development Prospects was submitted to the Southwest Corridor Study Committee in March, 1969. While this Part A submission was being reviewed by the Study Committee, four alternative land use plans were being prepared by the Boston Redevelopment Authority. A subsequent Part B report entitled The Southwest Corridor Study Area -- Analysis of Alternative Land Use Plans was submitted in August, 1969. The review of the Part B submission was completed in January, 1970. This report combines the Part A and Part B submissions taking into account the various comments made by members of the Southwest Corridor Study Committee.

During the course of this study, on August 7, 1969, the Massachusetts House of Representatives and Senate directed the Department of Public Works to "plan the construction of depressed highways whenever connector roads and interstate highway I-95 are indicated to the districts of Roxbury, Jamaica Plains and Forest Hills, all in the City of Boston." This directive relates specifically to the Southwest Corridor Study Area.

This report presents the following: (1) basic data on the area and surrounding region relevant to the study; (2) projections of market trends by land use category and associated employment levels from the present to 1972 and for 1975, 1980 and 1990 under the assumptions a) that both the expressway and transit line will be on an embankment and b) that both will be depressed; (3) estimates of market absorption rates and an analysis of the effects of existing development; and (4) an analysis of the alternative land use plans that includes a) a right-of-way analysis, b) Zone A and Zone B corridor impact analysis and c) overall corridor analysis. A highlight section covering both Parts A and B precedes the report itself. The table of contents follows on the next page.

It has been a pleasure to work with you and the Southwest Corridor Study Committee on this assignment. We look forward to any further discussions you deem desirable.

Sincerely,

ROBERT GLADSTONE AND ASSOCIATES

Robert Gladstone

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HIGHLIGHTS

PART A

1. The primary purpose of this study was to determine the potential demand for various types of residential, commercial and industrial development for both elevated and depressed designs in the transportation corridor, which is programmed to include transit and freeway facilities. The framework for the analysis included projection of study area potential in five-year and ten-year increments from the present through 1990. The depressed and embanked design effects on these potentials were then estimated. Finally, these potentials were expressed in marketability terms for land use. The report contains a quantitative basis for establishing rational dimensions to land use demand in the study area.

2. The process used in our analysis included the following: an analysis of area-wide trends for the metropolitan area, the city and the study area; a review of the existing programs that are operating in the study area and an analysis of their impact; the influence of the transportation corridor on the area; and the relative importance of the transportation corridor cross section design as one aspect of a program affecting the study area.

   a. Recent population and employment trends for the metropolitan area have differed from the city and the study area.

      i. The metropolitan population has grown at a 0.6 percent rate per year between 1960 and 1968. The employment growth rate for this same period equaled 2.0 percent per year.

ii. Between 1960 and 1967, population in the City of Boston declined an average of 1.5 percent yearly. Between 1960 and 1963 employment in the city declined 2.2 percent per year. However, recent activity in the central business district of Boston has diminished this rate of decline.

iii. The population in the study area has declined at the rate of 500 per year between 1963 and 1968 -- about 0.6 percent per year. The estimated population in 1968 in the study area totaled 80,000. Between 1963 and 1968, employment declined an average of one percent a year from 20,000 to its current level estimated at 19,000.

b. The future of the Southwest Corridor Study Area will be affected dramatically by the level and effectiveness of various public programs operating in the area. These cover model cities; anti-poverty; educational facilities and programs; urban renewal; housing code enforcement; housing, both public and special assistance; recreation facilities and programs; health services; and other municipal services, in addition to the transportation system. The transportation system is but one program operating in conjunction with many others affecting the study area. The design of the corridor is in turn only one factor in the transportation system.

i. The future population level of the study area will be affected by each of the programs mentioned above.

ii. The future employment in the study area will be affected most directly by model cities, anti-poverty, urban renewal and transportation programs.

iii. The public programs act as a system. For example, if the Boston Model City Program is well-funded and effective, the Campus High School Renewal Project will be more successful and vice versa. Accordingly, if one program functions well or poorly, the level and effectiveness of other programs tends to perform relatively well or poorly on a parallel basis.

c. The projected transportation corridor would permit easier access into and out of the study area for individuals as well as for movement of industrial and commercial goods. The study area, as a result, could more easily participate in the economy of the larger metropolitan community.

d. The removal of the Washington Street elevated from its present alignment will permit new commercial establishments to locate near planned tourist stations and will allow the existing commercial use to be shifted to residential.

e. The design of the transportation corridor will influence future development in the study area. Analysis of key development factors show that population growth is responsive to design considerations, and employment growth,

while responsive, is less so. Key design decisions for the transportation corridor including choice of embanked and depressed sections, type of structure, width of right-of-way, joint development patterns and similar factors would control the effect of the transportation system on land use and development. A "poorly" planned corridor could be expected to have an injurious effect on the study area, while a "well-designed" corridor would positively influence its potentials. In overall terms, the tendency would be for depressed facilities to be more closely associated with increases in population and economic activity, and for embanked design to be associated with declining area population.

3. The output of the process described above specifically includes population and employment projections with estimates of probability associated with each projection. The importance of transit system design for the future of the study area, and the effects of an embanked and depressed design on the probability estimates for the future of the study area are also defined.

a. Three population and employment projections were made for the study area. Basic to these projections were likely persistence of past trends in the study area; the possibility of the study area sharing more fully in the growth of the metropolitan area; and, especially, the level and effectiveness of public programs operating in the study area. The presence of a new transportation corridor by 1972 is assumed in each of these projections.

i. Situation A - The population and employment projections in this case are based on continuation of past trends in the Southwest Corridor Study Area. This situation projects population decline through 1980 at the same rate experienced in the recent past. Between 1980 and 1990, the decline can be expected to "bottom out" as location factors come into play and reduce population outflow. The employment projections in this case can be expected to continue at the present 19,000 level through 1990 with no further gain. This stable job total is influenced by the presence of the new projected transportation corridor which will improve access to the area. It is projected here, however, that future population and employment potentials for the area will be depressed by low program levels and effectiveness. This situation thus portrays a stagnant future for the study area.

ii. Situation B - The population and employment projections for this case are based on more full participation by the study area in metropolitan area growth patterns. Population is projected to reverse past declines and stabilize at 80,000 between 1968 and 1990 -- despite short-run displacements -- while employment is projected to increase at a modest rate of one percent per year

through 1990. Moderate levels and effectiveness will characterize the public programs in the area. The future pattern in the study area will essentially be stable in this situation.

iii. Situation C - In this case population growth of the study area is projected at a 0.6 percent annual gain between 1968 and 1990. This rate is equal to the population growth for the metropolitan area between 1960 and 1968. The employment projection for the study area is at the rate of 400 employees per year through 1990, or three percent per year, slightly above the two percent growth in metropolitan employment in recent years. Full participation in the growth patterns of the metropolitan area as projected here would require public programs to operate at high levels and effectiveness.

b. Because employment decline in the City of Boston is being arrested, and renewal prospects relating to the study area indicate that population decline should level off, future patterns in the study area will likely stabilize. Thus the case which will most likely represent the future of the area is Situation B, a relatively stable prospect in population and job terms. Since the future of the area is directly dependent on the levels and effectiveness of various public programs, any trend shift from Situation A to B and

from Situation B to C would of necessity rely on an increase in the level and effectiveness of the involved public programs. In the same sense, the declining pattern shown for Situation A is associated with low program levels and effectiveness; and the projections for Situation C, increasing population and employment, are associated with high program level and effectiveness.

c. The differential influence on area development of depressed and elevated designs was derived from systematic comparisons of depressed and embanked design development factors. Review of these factors -- presented in detail subsequently -- indicates a more favorable development impact for the depressed corridor design in more than five times as many cases as in the embanked design.

d. Design of transportation corridor affects the probability estimates set forth earlier for the three study area prospects. These estimates as modified are shown in the following table.

PROBABILITY ESTIMATES, THREE ALTERNATE PROJECTIONS, EMBANKED AND DEPRESSED CORRIDOR DESIGN

Situation	Study Area Prospects		
	Basic Alternatives	Embanked Corridor	Depressed Corridor
A. Stagnant	20%	30%	10%
B. Stable	60	60	60
C. Metro Share	20	10	30
TOTAL	100%	100%	100%

The key factors differentiating study area prospects from one another in relation to corridor design derive from analysis of the relative effects of various programs -- including corridor design -- in stimulating trend shifts in the area's growth pattern. The basis for these calculations is detailed in the report text.

4. Results of the analysis are presented in two sequences. The first relates the population and employment projections to projections of acreage devoted to residential, commercial, industrial and other uses. The second relates the population and employment projections to more specific recommendation regarding residential mix, employment and income patterns, etc.

a. Population and employment projections for Situation A, B and C were used as a basis for land use computations through 1990. Categories of land use for which the estimates were made include residential, commercial, industrial, institutional, parks and playgrounds, streets and ways, and residual vacant areas. (See Table 7 in the text that follows.)

i. The Situation A projection -- characterized as stagnant -- exerts no pressure on land use as illustrated by the increase in vacant land between 1968 and 1990.

ii. Situation B projection, characterized as stable with moderate increases in economic activity, exerts

pressure on land in the Southwest Corridor as illustrated by the decline in vacant land to a zero level in 1990. The build-up at "spill-over" level is zero in this case in 1990. "Spill-over" is the amount of demand for land that will have to be met elsewhere in the Boston area or be met by more intense use of land in the Southwest Corridor Study Area.

iii. Situation C projection, characterized as full participation in the metropolitan area's growth pattern, places heavy pressure on Southwest Corridor land. This pressure is illustrated by the "spill-over" acreage accumulated between 1968 and 1990 -- projected at 155 acres by 1990.

b. The differential impact of embanked and depressed designs would affect -- through population and employment prospects -- floor space used in the area, the number of residential units occupied, family income patterns, and job characteristics indexed by blue and white collar and by skilled, semi-skilled, and unskilled categories. In each case the land use forecasts imply in overall terms the pattern to be expected for the group of indexes listed above. Tabulations subsequently included provide special details.

PART B

1. The purpose of this Part B is to appraise the differential impact of embanked and depressed design on land use in the one-by-three mile Southwest Corridor Study Area. This was accomplished through a detailed analysis of four alternative land-use plans for the right-of-way prepared by the Boston Redevelopment Authority and included at the back of this report. The study area was divided into nine segments. Further zones were defined as follows:

   a. Right-of-way.

   b. Zone A - 250 feet on either side of the right-of-way.

   c. Zone B - remainder of the corridor.

2. The land use in the study area is primarily residentially-oriented with major institutional use. In total, some 42 percent of the study area is in residential use: 20 percent in parks and playgrounds, 14 percent in streets and ways, ten percent in institutions, ten percent in commercial and industrial use, and the remainder vacant. The tabular material on the following page summarizes the major land uses in the study area by segment. (See the BRA land use maps at the back of the report for segment identification. Segment 1 is the northernmost area and Segment 9 is the southernmost.)

3. For the four right-of-way land use plans an analysis was made for each of the Situations A, B and C projected for the study area.

   a. Situation A - The stagnant projection puts no pressure on existing land use and any of the four right-of-way plans would be compatible with this projection.

MAJOR EXISTING LAND USE

Segment	Existing Land Uses
1	Community facilities, residential, commercial
2	Residential, industrial, community facilities, commercial
3	Residential, open space
4	Residential, commercial, community facilities
5	Residential, commercial, industrial
6	Residential, commercial, open space
7	Industrial, residential, commercial, open space
8	Industrial, residential, commercial, open space
9	Residential, community facilities, open space

b. Situation B - The stable projection exerts limited pressure on land use. The depressed design would enable the study area to maintain its residential character.

c. Situation C - The metro share projection exerts strong pressure on residential and industrial land use. These increased pressures would be best met through a depressed design; however, the embanked design would be compatible with increased industrial land use.

The following table summarizes the right-of-way and study area segment analysis.

Segment	Embanked		Depressed	
	Housing	Industry	Housing	Industry
1	a. Open space development between Mission Hill and Campus High recommended. b. Elevated design could negatively affect proposed housing and community facilities in Corridor. c. Possible development of air rights for industrial use, under Situation C.		a. Open space development between Mission Hill and Campus High recommended. b. Depressed design would substantially enhance proposed housing and community facilities in Corridor. c. Commercial development possible near cross-overs under Situation C.	
2	a. Good commercial site, but possibilities for commercial development generally limited (primarily convenience); possible substantial commercial needed under Situation C with housing. b. Underrights development suitable primarily for parking or recreation. c. Housing not recommended; no need except limited under Situation C.	d. Good industrial area-potential with elevated design (visibility), but generally no industrial needs.	a. Good commercial site, but possibilities for commercial development generally limited (primarily convenience). b. Community facility development suitable. c. Housing and community facilities in Corridor enhanced by depressed design. d. Housing suitable, but little or no needs.	e. Good industrial area, but no needs.
3	a. Housing appropriate use, but no need except under Situation C.		a. Ideal housing area, but no needs except under Situation C. b. Depressed design appropriate for residential character of Corridor area. c. Open space could serve as link between Mission Hill and Highland Park communities.	

Segment	Embanked		Depressed	
	Housing	Industry	Housing	Industry
4	a. Good area for commercial and industrial development (potential enhanced by accessibility - transit station and highway interchange - and visibility); commercial emphasis recommended.		a. Good area for commercial and industrial development (potential enhanced by accessibility - transit station and highway interchange - and visibility).	
	b. Use for community facilities restricted.		b. Use for community facilities restricted.	
	c. No housing need in area.		c. No housing need in area (not practical).	
	d. Underrights development suitable primarily for parking.		d. Depressed design more appropriate because of proximity to Segment 3.	
5	a. Limited development feasible unless expressway is depressed		a. Limited development feasible unless expressway is depressed; depressed design appropriate for residential character of greater part of Corridor area and would fortify commercial development in Segment 4.	
	b. Substantial open space recommended as barrier between industry and housing (but open space impractical under Situation C).		b. Residential and related uses appropriate, but no housing need except under Situation C.	
	c. Good industrial location (east side, north end) but no need under Situation A.		c. Ideal industrial area; additional light industry recommended (east side, north end), except no industrial needs under Situation A.	
	d. No housing need, except under Situation C, where additional housing is recommended (south end).			
	e. Underrights suitable for parking or open space recreation only.			
	f. Community facilities possible but questionable against existing industry.			

Segment	Housing	Industry
6	a. Commercial use, limited to neighborhood facilities (limited need created by transit station).	a. Commercial use limited to neighborhood facilities (limited need created by transit station).
	b. Transit station not recommended; BUT transit station best at Green Street.	b. Transit station not recommended.
	c. Underrights suitable for parking or open recreation only.	c. Housing, open space, and community facilities best use for area, but no demand except under Situation C.
	d. Housing, open space, and community facilities best use for area, but generally no demand.	d. Under Situation C, substantial residential use appropriate, including air rights development.
	e. Under Situation C, need for housing and industrial space will limit open space use.	e. Existing residential character of Corridor area should be reinforced by expressway design.
	f. Elevated design would enhance commercial uses, but existing residential character should be reinforced to insure continuance.	f. Limited commercial/residential redevelopment along Washington Street after removal of elevated.
	g. Limited commercial/residential redevelopment along Washington Street after removal of elevated.	
7	a. Industrial use recommended (east side), with visible barrier between industry and residential on west (elevated highway or extensive screened open area).	a. Industrial use recommended (east side), with visible barrier between industry and housing on west (extensive screened open space) - but no demand for industry under Situation A.
	b. Commercial use also appropriate.	b. Commercial use also appropriate.
	c. Limited commercial/residential redevelopment along Washington Street after removal of elevated.	c. Housing use not recommended; suitable alternative would be open space.
	d. Existing residential character of Corridor area should be reinforced by expressway	d. Limited commercial/residential development along Washington Street after removal of elevated.
		e. Existing residential character of Corridor area should be reinforced by expressway design.

Segment	Embanked		Depressed	
	Housing	Industry	Housing	Industry
8	a. Commercial and industrial development ideal and recommended (emphasis on industry between Washington Street and expressway).		a. Commercial and industrial development ideal and recommended (but no commercial need except under Situation C).	
	b. Embanked design recommended (visibility).		b. Industrial emphasis recommended between Washington Street and expressway.	
	c. Underrights suitable for parking only.		c. No housing need, but westward transition to housing recommended.	
	d. Westward transition to housing recommended.			
9	a. Housing emphasis recommended.		a. Housing emphasis recommended, but no housing need except under Situation C.	
	b. Open space recommended between housing and highway.		b. Little need for commercial space, but possible; commercial orientation recommended at Walk Hill Street with transit station.	
	c. Little need for commercial space, but possible; commercial orientation recommended at Walk Hill Street with transit station.		c. Limited industrial potential in area, but good area if needed (possible air rights).	
	d. Limited industrial potential in area, but possible and suitable.		d. Depressed design appropriate for residential character of area; should strengthen existing residential.	
	e. Expressway design should strengthen existing residential character of area.			

PART A

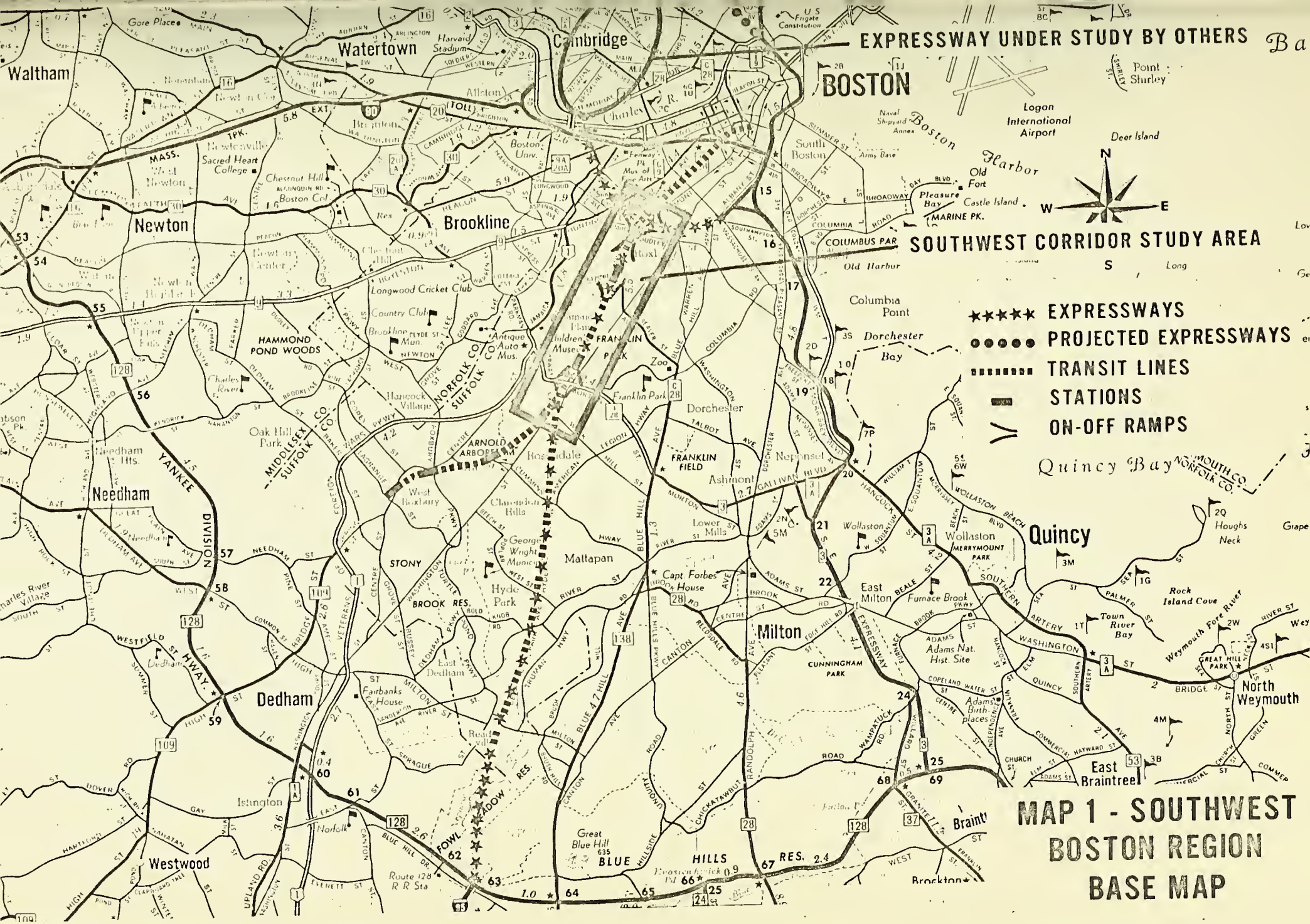
THE SOUTHWEST CORRIDOR STUDY AREA
MARKETABILITY REPORT - STAGE I

This report for the Southwest Corridor Study Committee contains two major parts -- A - Development Prospects and B - Analysis of Alternative Land Use Plans. Included in Part A are population and employment estimates and their impact on the economy of the Southwest Corridor Study Area as related to a depressed and embanked freeway design. Part B contains an analysis of four joint alternative plans for the Southwest Corridor Study Area right-of-way. The Southwest Corridor Study Area was divided into three zones for purposes of analysis. These included (1) right-of-way; (2) the immediate impact Zone A, located generally within a line 250 feet on either side of the right-of-way; and (3) the remainder of the one-by-three mile corridor area, designated as Zone B.

DEVELOPMENT PROSPECTS

The Southwest Corridor Study Area as defined for purposes of this study lies south of downtown Boston. (See Map 1 - page 2.) It is a one-by-three mile rectangle centered on the NY-NH&H Railroad right-of-way, roughly bounded on the north by Ruggles Street and on the south by Walk Hill Street. Portions of the community of Jamaica Plain lie within the study area as does a small residential area south of the Arborway between the Arboretum and Forest Hills Cemetery. A portion of the Parker Hill area and Roxbury just north of Jamaica Plain also falls within the study area.

The study area is mixed in land use patterns, ranging from predominantly single-family residential on the south to mixed commercial-resi-


EXPRESSWAY UNDER STUDY BY OTHERS
SOUTHWEST CORRIDOR STUDY AREA
EXPRESSWAYS
PROJECTED EXPRESSWAYS
TRANSIT LINES
STATIONS
ON-OFF RAMPS
MAP 1 - SOUTHWEST
BOSTON REGION
BASE MAP
Boston
Cambridge
Watertown
Waltham
Newton
Brookline
Needham
Dedham
Westwood
Quincy
Milton
Braintree
Weymouth
Logan International Airport
Boston Harbor
Quincy Bay
Dorchester Bay
Old Harbor
Columbia Point
Deer Island
Point Shirley
Franklin Park
Zoo
Arnold Arboretum
Blue Hills Res.
Fowl Meadow Res.
Hammond Pond Woods
Brook Res.
Stony
Cunningham Park
Rock Island Cove
Houghs Neck
Wollaston Beach
Furnace Brook Pkwy
Adams Nat. Hist. Site
Yankee Division
Middlesex Co.
Norfolk Co.
Suffolk Co.
Plymouth Co.

dential on the north with a large metropolitan shopping center -- Dudley Station -- located in the northeast section of the study area. Some 125 acres in the study area are currently utilized for industrial purposes. Over 90 percent is located along the railroad right-of-way which bisects the area.

I. Study Objectives

The purpose of this study is to determine the potential demand for various types of residential, commercial and industrial development for both embanked and depressed transportation corridors. The framework for the analysis includes a development of study area potentials in five-year and ten-year increments from the present through 1990. Estimates have been made for the depressed and embanked effects on these potentials, and these are expressed in marketability terms for critical categories of land use.

> A quantative basis establishing rational dimensions in land use and marketability terms has been developed in this report. The procedures utilized to accomplish this are specifically identified and explained in the text which follows. The end products are general projections of land use in acreage terms.

Population and employment estimates were specifically prepared for the present and for the years 1972 (projected initial year of operation for the proposed transportation corridor facilities), 1975, 1980 and 1990. These estimates serve as the primary basis for estimating future land use and employment characteristics in the study area.

Land use indexes include acreage, square footage, and other estimated measures of land devoted to residential, industrial, commercial, institutional, parks and playgrounds, streets and ways and vacant land.

The differential impact of embanked and depressed transportation corridor on population and employment levels has been estimated for all uses described. Factors causing the differential impact are presented in table form. For each projection of population and employment, associated land use quantities have been developed.

II. Method of Analysis

The specific steps undertaken include the following: (1) analysis of area trends including the metropolitan area, the city and the study area; (2) review of existing programs operating in the study area and analysis of their impact; and (3) evaluations of transportation corridor influence on the area with account taken of the relative importance of the transportation corridor design as part of the full array of programs affecting the study area.

Area Trends

Recent population and employment trends have differed for the metropolitan area as compared to the city and the study area. The metropolitan area has had an increase in population at an annual rate of 0.6 percent since 1960. Between 1960 and 1967 population in the metropolitan Boston area increased from 3.1 million to 3.2 million. During this same time period employment increased from 1.1 million to 1.2 million -- a 2.0 percent annual rate of gain.

The City of Boston, on the other hand, has recorded declines in both population and employment levels. Between 1960 and 1967 the population of the city declined at the average rate of 1.5 percent a year. Between 1960 and 1963 employment declined 2.2 percent per year. However, recent activity in the central business district of Boston has diminished this decline.

The study area can more readily participate in the larger metropolitan community and its future development pattern as a result of an improved transportation corridor. The operation of this corridor will permit easier access into and out of the study area for area residents, commuting workers and for movement of industrial and commercial goods.

Existing Programs

The Southwest Corridor Study Area could normally be expected to follow the general pattern of the City of Boston. However, a number of public programs are currently operating in the area which could potentially alter its prospects for future population and employment levels. The level and effectiveness of these programs will directly influence the future of the study area. These include model cities; anti-poverty; education facilities and programs; urban renewal; housing code enforcement; housing, both public and special assistance; recreation facilities and programs; health services; other municipal services; and the transportation system itself. The design of the transportation corridor is therefore one factor in one program that will operate in conjunction with many to affect the future of the study area.

The programs enumerated above have different impacts on future population as compared to employment. Each of the programs listed affects future population while model cities, anti-poverty, urban renewal, and the transportation system most directly affect future employment in the study area. These public programs tend also to be interrelated -- as components in a system -- so that if one program functions poorly, the level and effectiveness of other programs are also likely to suffer. This interrelationship is even further extended as a result of correlated trends in funding operations for program groups. For example, the model city programs relate to schools, renewal activity, housing code, health, and access to employment opportunity for model city area residents. Similarly the transportation system takes into account school location, renewal activity as it influences population density, recreation facilities and industrial location. Further discussion of program impact and effectiveness begins on page 12.

Transportation Corridor

The specific design of the transportation corridor -- embanked and depressed -- is a key aspect of the transportation system that will influence future development prospects of the study area. Analysis of a series of critical development factors show that population growth is especially responsive to design considerations. Increases in population accordingly are associated with depressed designs for the transportation corridor. Employment, on the other hand, is less sensitive to corridor design and the projections so reflect.

The embanked and depressed corridor along with other transportation elements (such as type of structure, width of right-of-way, and joint development possibilities), control the level and effectiveness of the transportation system in relation to area development potential. A poorly planned corridor, no matter what the design, would be injurious to the study area. On the other hand, a well-designed corridor would tend to have positive effects on the area in overall terms. Likewise in overall terms, the tendency would be for depressed design to be more closely associated with population growth and increases in economic activity as compared to embanked designs; and conversely, for an embanked design to be associated more with declining population. These relationships are fully developed in a subsequent section.

III. Study Framework

Analysis of the population and employment projections for the study area take into account recent trends in employment and population levels for the metropolitan area, the City of Boston and the Southwest Corridor Study Area. The level and effectiveness of the public programs currently functioning in the study area are estimated for each projection. The importance of corridor cross section design on the future projections for the study area are appraised and probability estimates of all projections are established to account for the effects of embanked and depressed sections.

Population and Employment Estimates

A current population level of 80,000 was estimated for the area using the 1960 Census of Population updated by means of the 1963 Origin and Destination Survey available through MAPC. Other materials utilized were "The Economic Analysis of the Jamaica Plain General Neighborhood

Renewal Plan Area: and "The Economic Analysis of the Parker Hill-Fenway General Neighborhood Renewal Plan" prepared for the Boston Redevelopment Authority.

Employment estimates in the study sector -- currently set at 19,000 -- were prepared using similar resources. In addition, the Department of Employment Security provided job totals by traffic zones in the study area for 1963. The estimated number of manufacturing and non-manufacturing firms in the study area in 1968 were estimated by the staff of the Boston Redevelopment Authority.

> Three population and employment projections were made for the study area. The two important considerations basic to the projections were (1) the extent of participation by the study area in metropolitan growth and (2) the level and effectiveness of public programs operating in the study area. The presence of a new transportation corridor by 1972 is assumed for each projection.

These projections portray a range of possibilities the study area might experience in terms of prospective employment and population levels. Critical in the ultimate levels actually realized in the area will be public policies as expressed in programs applied and funded. The range of prospects can be summarized in each of three cases: A, B and C.

Situation A. The first projection shows population declining through 1980 at the same rate that the study area has recorded in the recent past. Between 1980 and 1990 population can be expected to level out and the decline reduced since the study area is located near job centers in downtown Boston. The employment projections show a stable job level at 19,000 through 1990. This stable outlook is influenced in meaningful part by the presence of a new transportation corridor

which can be expected to function at low levels and effectiveness in this area. Thus, future population levels would be lowered and employment levels stabilized. In general, this situation is characterized by a decaying population base and a stable employment level -- in sum, a stagnant situation.

Situation B. The next alternative projected shows the study area participating more fully in metropolitan area population and employment patterns. Population is projected to level out and remain at 80,000 between 1968 and 1990. Family displacement and projected replacement through 1972 is specifically taken into account in this projection.

The following table tabulates family displacements in corridor right-of-way as well as other displacements for other programs. The table also contains programmed replacements through 1972.

Employment projections for Situation B are set at the modest rate of one percent per year through 1990. This rate is half that for recent years in the metropolitan area. Population and employment projections will be affected by the moderate level and effectiveness of the public programs functioning in the study area, however. In general, Situation B can be characterized as stable with level population prospects and modest employment gain.

Situation C. The final projection shows population growth rates in the study area between 1968 and 1990 equaling the metropolitan area's for recent years -- 0.6 percent. The study area could thus be participating fully in the growth of the metropolitan area in this projection.

Table 1. FAMILY DISPLACEMENT AND PROJECTED REPLACEMENT THROUGH 1972, SOUTHWEST CORRIDOR STUDY AREA

Projects	No. Households	No. Persons
A. Displacements		
1. Campus High Renewal	300	
2. Code Enforcement	36	
3. South End Renewal	30	
4. Washington Park Renewal	0	
5. Fenway Renewal	0	
6. Transportation Right of Way	730	
Total	1,096	3,430

	No. Households	No. Persons
B. Replacements (Proposed New Housing)		
1. Infill Housing	102	
2. Public Housing (elderly or leased)	351	
3. 221 D-3 Housing Projects	140	
4. Campus High Project	400	
Total	983	2,870

Source: Boston Redevelopment Authority; Housing Inspection Department, Boston Housing Authority; the Department of Public Works

The employment projection for the study area is at a rate of increase of 400 per year through 1990. This is a three percent per year increase and slightly exceeds the two percent growth rate in metropolitan employment. Full participation in the growth of the metropolitan area could require public programs to operate at high level and effectiveness. Situation C can be summarily described as full participation for the study area in metropolitan population and employment growth patterns.

Probability Estimates

Public programs have triggered recent activity in the Boston CBD. The renewal programs and associated residential-related activity projected for the study area indicate that the population decline in the study area will be arrested.

While the past eight years have shown a decaying situation in the study area, continued metropolitan employment and population growth increases in the central business district of Boston and the potential for the diminishing population decline in the study area strongly suggest that population and employment levels in the study area may now likely move toward stabilization. Thus, the projection which in our judgment will most likely represent the future of the area is Situation B -- a relatively stable condition.

The future of the study area will, however, be influenced strongly by the level and effectiveness of the public programs operating there, as already indicated. If these programs perform at low levels, the outlook for the area would be continued decay (Situation A). If, on the other hand, programs function at high levels and effectiveness, the

study area can then potentially participate fully in the growth at the metropolitan area level as projected in Situation C. This latter prospect represents the most ambitious and the highest reasonable level obtainable for the area, in our judgment.

The following table contains probability estimates for the three projections in the Southwest Corridor Study Area:

Table 2. PROBABILITY ESTIMATES, THREE ALTERNATIVE PROJECTIONS, SOUTHWEST CORRIDOR STUDY AREA

Situation	Probability
A. Stagnant	20%
B. Stable	60
C. Metro Share	20
TOTAL	100%

Program Effectiveness

Presently the study area has a declining trend in its population and economic activity. A series of programs have been instituted to alter prospects for the area. These programs have been assigned effectiveness ratings based on their importance in changing the direction of the community in employment and population terms. To illustrate, while health services are important to the residents of an area, population levels will be influenced more by how the housing program is operated in the community.

The index level for each program reflects an estimated effectiveness required to motivate a shift from one situation to another. For example,

while a total program effectiveness index of ten would motivate a population projection shift from Situation A to B (see Table 3), a total of 12 would more radically motivate this change. The movement from Situation B to C requires an even greater level of program effectiveness. If the transportation corridor is embanked, the other programs must overcompensate in order for the area to move from Situation B to C.

The following Tables 3 and 4 set forth relative program effects estimated to bring about trend shifts as between Situation A and B and between Situation B and C. Table 3 calibrates program effectiveness in relation to study area population factors, and Table 4 measures program effectiveness for employment levels in the area.

The set of program effectiveness indexes used here are designed to systematically dimension impacts of the transportation corridor design. The difference between embanked and depressed projections is quantitatively set by the differential impact ratios shown above for the shifts between Situations A and B and B and C.

> For the program effectiveness related to population patterns, eight program types have been evaluated. The trend from Situation A to B would be more substantially influenced by a depressed design than an embanked design; for this case the depressed design was assigned three as compared to one for the embanked design. Other programs would remain neutral with respect to this issue and, hence, would carry equal weights in both cases. As can be seen, the corridor design factor is one of many influencing the access trends.

Similarly for the trend from Situation B to C, the effect of a depressed design carries a relative weight of three as compared to one for an embanked design. Thus, a depressed design would lead to Situation C becomming a more likely representation of the future of the

Table 3. STUDY AREA POPULATION
PROGRAM EFFECTIVENESS INDEXES

Program Types [2]	Relative Program Effects In Motivating Situation Changes [1]			
	A to B		B to C	
	Embanked	Depressed	Embanked	Depressed
Model Cities - Anti-Poverty Programs: Employment & Job Training	2	2	3	3
Education Facilities & Programs	1	1	2	2
Urban Renewal - Housing Code Enforcement	1	1	2	2
Housing: Public & Special Assistance	2	2	2	2
Recreation Facilities & Programs	1	1	1	1
Health Services	1	1	1	1
Other Municipal Services	1	1	1	1
TRANSPORTATION:				
Freeway & Transit Improvements [3]	1	3	1	3
TOTAL	10	12	13	15
Differential Impact Ratios: Embanked vs Depressed Section	10 ÷ 12		13 ÷ 15	

[1] See notes covering situation descriptions. Differential program impacts provide the basis for three alternate prospects for study area.

[2] Primary existing and projected programs for public actions in study area.

[3] Includes S.W. Freeway and new MBTA service in rail corridor.

Table 4. STUDY AREA EMPLOYMENT
PROGRAM EFFECTIVENESS INDEXES

Program Types 2/	Relative Program Effects In Motivating Situation Changes 1/			
	A to B		B to C	
	Embanked	Depressed	Embanked	Depressed
Model Cities Anti-Poverty Programs: Employment; Job Training	2	2	3	3
Urban Renewal	2	2	3	3
Other Municipal Services	1	1	1	1
TRANSPORTATION: 3/ Freeway & Transit Improvements	3	4	3	4
TOTAL	8	9	10	11
Differential Impact Ratios: Embanked vs. Depressed Section	8 ÷ 9		10 ÷ 11	

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ee notes covering situation descriptions. Differential program impacts provide he basis for three alternate prospects for study area.

Primary existing and projected programs for public actions in study area.

Includes S.W. Freeway and new MBTA service in rail corridor

area. The differential impact of an embanked versus a depressed section, acting in conjunction with other programs (in the A to B movement), is 10 ÷ 12. This impact is relatively more important than the 13 ÷ 15 in the Situation B to C shift. In other words, the depressed design is more important in the study area attaining stability than it is in moving the area from the stable Situation B to the metro share, Situation C.

For program effectiveness related to employment, the difference between embanked and depressed for shifts from A to B and B to C is small. In the A to B trend, a value of four was assigned to the depressed design as compared to three for the embanked. The same weights were expected for the B to C movement. Accordingly, the differential program impact for depressed and embanked design in the A to B shift -- when the total program package is considered -- is 8 ÷ 9; in the case of the B to C movement it is 10 ÷ 11.

Development Factor Analysis

The differential impact of depressed compared to embanked designs on population and employment projections are illustrated in the previous Tables 3 and 4. These differential influences were directly derived from comparisons of depressed and embanked designs development factors. These development factors were obtained from numerous references secured in the course of the research and analysis of this assignment. The "+" in a particular column indicates that one type of design is better than or equal to the other for the particular development factor. When there is a substantial difference, a "++" is denoted. The summing of the ratings indicate in a general way the advantage or disadvantage of one design as compared to the other. As shown in Table 5, a depressed design is favored over an embanked corridor by a factor ratio of almost five to one. Table 5 following summarizes these points.

COMPARISON OF DEPRESSED AND EMBANKED DESIGN DEVELOPMENT FACTORS [1/]

Item	Embanked Better Than Depressed	Embanked Equal To Depressed	Depressed Better Than Embanked
oint Development Opportunities	0	0	++
isual Division Effect	0	0	++
rossing-Circulation	0	+	0
loise Effects	0	0	+
nysical Division	0	+	0
espondent Impact on Adjacent Developed Land Use			
A. Industrial			
i. Area Resident	0	+	0
ii. Property Owners	0	0	+
B. Low Density Residential			
i. Area Resident	0	0	++
ii. Occupant	0	0	++
C. Medium Density Residential			
i. Area Resident	0	0	++
ii. Occupant	0	0	++
D. High Density Residential			
i. Area Resident	0	0	+
ii. Occupant	0	0	+
E. Commercial Centers			
i. Shoppers	+	0	0
ii. Owners	+	0	0
F. Institutions - Users Response	0	0	+
npact on Future Development Potential			
A. Industry	0	+	0
B. Low Density Residential	0	0	++
C. Medium Density Residential	0	0	+
D. High Density Residential	0	+	0
E. Commercial Centers	+	0	0
lexibility for Changing Use	0	0	+
e-Development Potential	0	0	+
ocial Program Realization	0	0	++
abor Market Impact	0	0	+
ax Revenue Potential	0	0	+
sychological Impact on Community	0	0	++
reeway and Transit Users Response	++	0	0
Totals	4	5	19

1/ effect
ct as noted in column heading
stantial effect

: the list of references at the back of the report used to establish these comparisons

> The analysis of the development factors presented in Table 5 demonstrates the impact of transportation corridor design and the specific influence on population projections. The only development instances where embanked was judged better than depressed included commercial centers and in the response of freeway and transit users. In each case, where residents of the community are affected the depressed was judged better than embanked. The general results shown in the table accord with conventional wisdom and empirical development results even though surveys of reaction to previously completed freeway systems were used in compilation here.
>
> The present railroad embankment has effectively separated the east and west portions of the study area for many years.. This analysis accounts for either allowing the existing embankment to stay or removing it. With this in mind, a review was conducted of relevant literature related to depressed, elevated and embanked designed transportation corridors.

Following is a brief review of key items in relevant sources surveyed in the process of deriving the comparison of depressed and embanked design development factors. Particularly useful was "A Policy On Arterial Highways in Urban Areas" by the American Association of State Highway Officials. A brief summary with excerpts from this reference follow below:

> A depressed freeway has several advantages over other forms of arterial highways - it does not present a visual barrier to adjacent developments. "It is flexible in that future requirements of cross traffic can be satisfied readily by providing additional structures across the freeway...." "The ramps slope up where vehicles decelerate and down where they accelerate." When constructed within adequate right of way it is pleasing in appearance and gives a sense of openness. It tends to muffle undesirable noises of moving vehicles.

Some disadvantages -- relating to engineering and costs rather than development factors -- include:

> Drainage may be difficult and expensive. Extensive reconstruction of underground facilities may be required. "Acquisition of considerable right of way may be necessary...."

This same reference further comments on elevated highways as follows:

> "...continuous elevation is generally acceptable in industrial or commercial areas but rarely in residential areas." "An elevated freeway on embankment with appropriate landscaped slopes may be acceptable in residential areas where there is adequate right of way." "Normally an elevated freeway requires less right of way than a depressed facility." "Freeways on embankments are feasible in urban areas with crossing streets not too closely spaced where wide right of ways and excavation material are available. Long continuous sections seldom are practical."

Another reference, "The Freeway in the City," a report to the Secretary of the Department of Transportation, emphasizes the need for joint development between the highway program and other programs.

> "Out of all serious dialogue on urban expressways, today emerges one insistent and compelling idea: that of using the highway to structure or restructure the city." "When the freeway, due to its multiple use and air-rights possibilities, adds to rather than subtracts from the store of buildable urban space, and augments, rather than decreases, the tax ratables, it will have greatly enhanced its position in the city -- and it's welcome."

Another reference, "Freeways," by Lawrence Halprin, the landscape architect and urban designer, indicates that:

> "The elevated freeway on embankment is a very typical kind used -- in low density urban areas and is a favorite with railroad engineers." "Community impact can be worse than that of the depressed freeway or elevated via docks. Wide swaths are cut through neighborhoods, disrupting them; and the fine grain of the neighborhood is destroyed with a new diverse element. What is more, the vertical embankment serves actively as a long visible barrier from one

side of the freeway to the other." For a depressed type, "the community impact in terms of noise is fairly good, and at a distance, the freeway is obscured from view. Of all the side-by-side freeways, however, this is the best because its visual impact is ameliorated."

A number of other references were used to develop comparisons of depressed and embanked design development factors. These references are cited specifically in the bibliography which follows at the end of the report.

The impact of improved transportation access on land values has been often and elaborately documented. Improved access stimulates development of industrial, commercial and intensive residential use of nearby land and generally triggers increases in land values. Increased accessibility and visibility to and from sites near the expressway is the key factor related to this increase. The study has not focused on a highest and best use analysis, but these factors definitely relate to land development and market potentials in the study area. Accordingly, we have projected general land use and marketability patterns associated with the range of possible prospects for the study area.

Embanked and Depressed Designs

Probability estimates were previously set forth for Situations A, B and C. The stable prospect for the area -- Situation B -- was estimated to have a 60 percent change of occurring. The other Situations A and C were given equal chances of occurring at 20 percent each. A new set of probabilities -- modified from the above -- result when the design of the freeway is considered. These estimates are summarized in the following table:

Table 6. PROBABILITY ESTIMATES EMBANKED AND DEPRESSED CORRIDOR DESIGN

Situations	Basic Alternatives	Embanked Corridor	Depressed Corridor
A. Stagnant	20%	30%	10%
B. Stable	60	60	60
C. Metro Share	20	10	30
TOTAL	100%	100%	100%

The design of the transportation corridor changes the probability of Situation A and Situation C, but leaves unchanged the most probable, Situation B. Situation A, the stagnant projection, is more likely to occur if the corridor is embanked as compared to if it is depressed. Program effectiveness index presented above and the comparison of depressed and embanked design development factors illustrate that an embanked design would typically be associated with reduced effectiveness in the transportation program as compared to the depressed design -- especially in relation to population factors. Since the Situation A projection is influenced by reduced program effectiveness it is more closely associated with the embanked corridor, and, therefore, the higher probability for this prospect -- 30 percent as compared to ten percent for the depressed section.

The projection involving full metropolitan growth participation -- Situation C -- requires high program effectiveness. The depressed design with its more favorable development impacts increases the probability of the high range Situation C occurring to 30 percent. Conversely, if the transportation corridor is embanked, the chance for

Situation C drops to ten percent. The quantitative implications of each of these situations and designs are set forth in tabular and graph form in the next section.

IV. Results

The results of our analysis are presented in two forms. The first relates the population and employment projections to estimates of acreage devoted to residential, commercial, industrial and other land use. The projections described by Situations A, B and C are the basis for these acreage estimates. The second relates the population and employment projections to number and type of residential units and structures; household income distribution; commercial space-retail trade and service, cultural and entertainment, office and parking; industrial space-manufacturing and wholesale distribution; and employment -- blue and white collar and skilled, semi-skilled and unskilled. Estimates for these land use and employment characteristics define the potential differences associated with embanked and depressed designs in the corridor.

The estimates of acreage expected for residential, commercial, industrial, institutional, parks and playgrounds, streets and ways and vacant land are included in the following table for each projection in Situations A, B and C.

Study Area Prospects

The Situation A projection, characterized as stagnant, exerts no pressure on land use between the present and 1990. In fact, vacant land is projected to increase from its present level of 50 acres to 90 acres by 1990, based on area decline. Specifically, decreases in commercial and residential needs lead to this increase in vacant land.

Table 7. ESTIMATED CHANGES IN LAND USE AND POPULATION - EMPLOYMENT PROJECTIONS FOR 1972, 1975, 1980 AND 1990 -- SOUTHWEST CORRIDOR STUDY AREA, BOSTON

	1968	1972	1975	1980	1990
Situation A	----------Numbers----------				
Population	80,000	78,000	76,500	74,000	71,500
Employment	19,000	18,000	19,000	19,000	19,000
	----------Acres----------				
Residential	810	795	780	770	750
Commercial	80	55	65	65	55
Industrial	125	115	125	125	125
Institutional	190	235	235	235	235
Parks and Playgrounds	395	345	345	345	345
Streets and Ways	270	320	320	320	320
Vacant	50	55	50	60	90
Total Acres	1,920	1,920	1,920	1,920	1,920
Spillover	--	(0)	(0)	(0)	(0)
Situation B	----------Numbers----------				
Population	80,000	80,000	80,000	80,000	80,000
Employment	19,000	18,000	19,000	20,000	22,000
	----------Acres----------				
Residential	810	810	810	810	810
Commercial	80	65	65	65	65
Industrial	125	115	125	135	145
Institutional	190	235	235	235	235
Parks and Playgrounds	395	345	345	345	345
Streets and Ways	270	320	320	320	320
Vacant	50	30	20	10	0
Total Acres	1,920	1,920	1,920	1,920	1,920
Spillover	--	(0)	(0)	(0)	(0)

Table 7. ESTIMATED CHANGES IN LAND USE AND POPULATION - EMPLOYMENT PROJECTIONS FOR 1972, 1975, 1980 AND 1990 -- SOUTHWEST CORRIDOR STUDY AREA, BOSTON (Cont'd)

	1968	1972	1975	1980	1990
Situation C	----------Numbers----------				
Population	80,000	81,000	83,500	86,000	91,000
Employment	19,000	20,500	21,700	23,600	27,500
	----------Acres----------				
Residential	810	840	855	870	920
Commercial	80	80	83	85	90
Industrial	125	125	135	145	165
Institutional	190	235	235	235	235
Parks and Playgrounds	395	345	345	345	345
Streets and Ways	270	320	320	320	320
Vacant	50	0	0	0	0
Total Acres	1,920	1,945	1,973	2,000	2,075
Spillover	--	(25)	(53)	(80)	(155)

The Situation B projection, characterized as stable, does exert pressure on land in the Southwest Corridor. By 1975, the vacant land is expected to decline from 50 acres to 20 as a result of the increase of land needs for industrial purposes. Industrial land needs should continue to increase. By 1990, no vacant acreage is anticipated for the study area.

The Situation C projection, full participation in the metropolitan area's growth, places heavy pressure on land in the study area. These pressures derive from increased needs for residential, commercial and industrial space. By 1990, the spillover acreage would total 255 acres. Intensive use for all three major land use categories would be necessary if shifts in demand do not intervene.

Embanked and Depressed Projections

The differential impact of an embanked and depressed design have been estimated for Situations A, B and C. Two projections result for each situation -- one each for embanked and depressed cross sections. These projections include impacts on employment and population levels as well as on land use. Table 8 shows the employment and population estimates associated with an embanked and depressed corridor.

In each situation the depressed estimate is equal to or greater than the embanked estimate. The differences are greater for population than employment.

> The embanked and depressed differential impact ratios established earlier and reported in Tables 3 and 4 provided the basis for calculating the difference between population and employment projections for each situation. Specifically, the forecast level of each projection was established for the depressed section based on the study area prospect as described.

Table 8. POPULATION AND EMPLOYMENT ESTIMATES FOR EMBANKED AND DEPRESSED DESIGNS, SOUTHWEST CORRIDOR STUDY AREA

	1968	1972	1975	1980	1990
opulation:					
uation A: Stagnant					
Embanked	80,000	76,400	74,900	72,400	69,900
Depressed	80,000	78,800	77,200	74,700	72,200
tuation B: Stable					
Embanked	80,000	79,200	78,600	77,600	76,600
Depressed	80,000	80,000	80,000	80,000	80,000
tuation C: Metro Share					
Embanked	80,000	80,200	82,900	85,000	89,000
Depressed	80,000	81,000	83,500	86,000	91,000
nployment:					
tuation A: Stagnant					
Embanked	19,000	18,000	19,000	19,000	19,000
Depressed	19,000	18,000	19,000	19,500	20,500
tuation B: Stable					
Embanked	19,000	18,000	19,000	19,500	21,000
Depressed	19,000	18,000	19,000	20,000	22,000
ituation C: Metro Share					
Embanked	19,000	20,300	21,500	23,370	27,230
Depressed	19,000	20,500	21,700	23,600	27,500

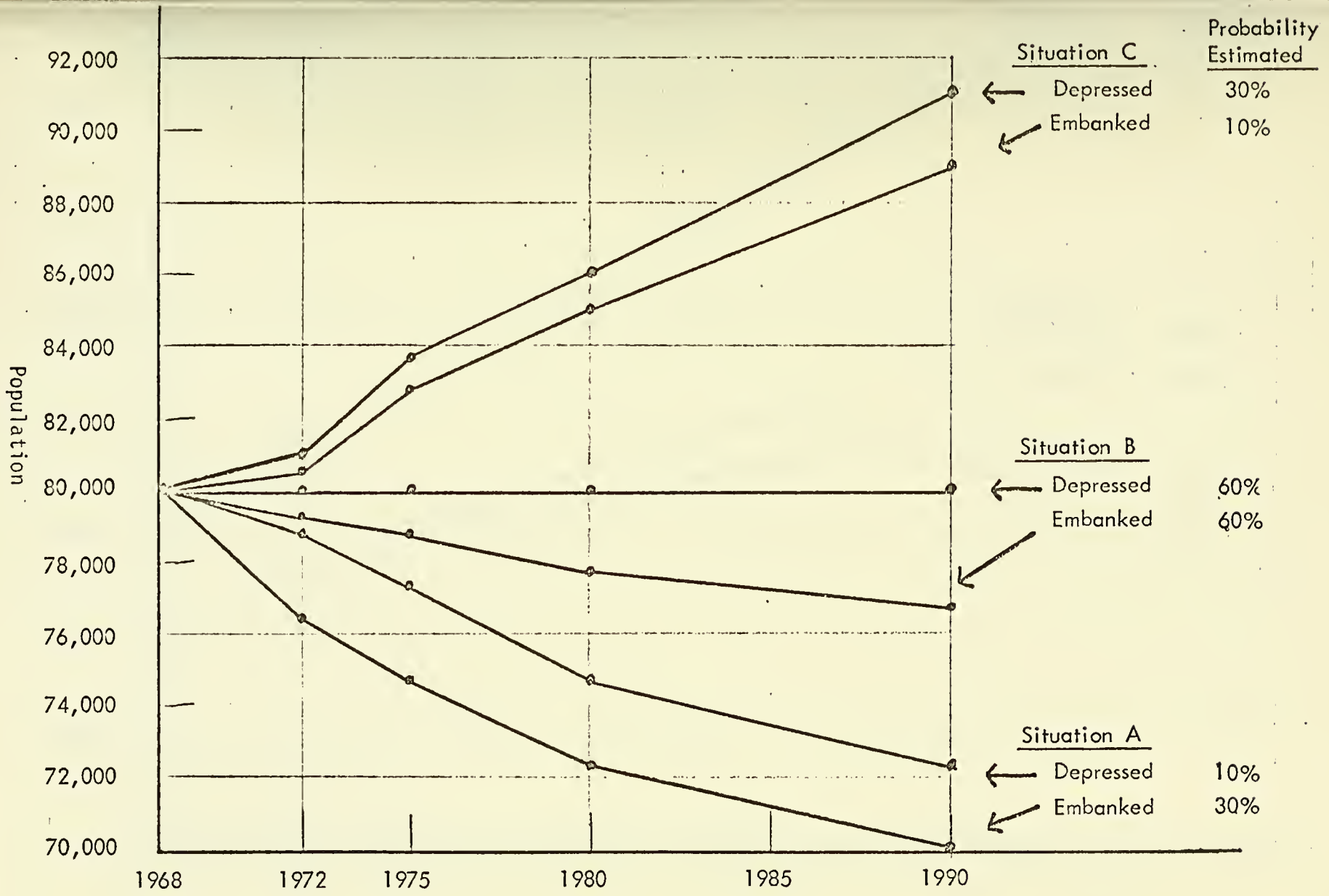
The program effectiveness ratios were used to calculate the offset. The population impact ratio resulted in larger differences between depressed and embanked projections in contrast to the projections for employment.

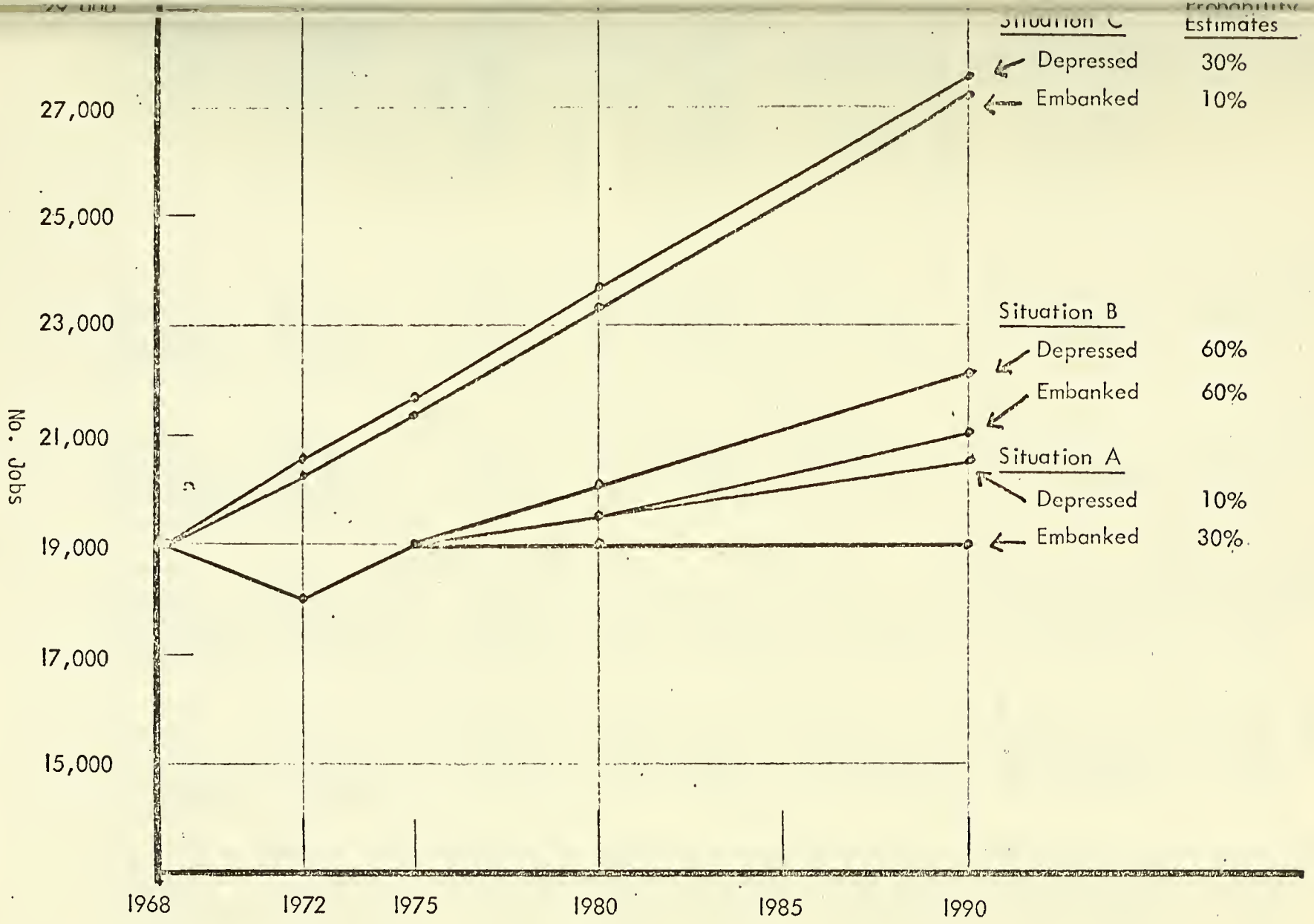
In an earlier section probabilities were stated for the embanked and depressed projections. These are now presented in the following two graphs that show population and employment projections.

Embanked and depressed projections as they relate to land use, population and employment for Situation A are found in Tables 9 and 10. They basically follow the land use projections for Situation A presented earlier. The depressed projection requires more residential structures, more commercial space and more jobs than the corresponding embanked projection.

For Situation B, depressed projections show higher requirements as compared to the embanked projections (compare Tables 11 and 12). More residential structures, the same amount of commercial space, more industrial space, and higher employment levels are required.

The embanked and depressed projections for Situation C are presented in Tables 13 and 14. The projection for each land use and employment category is higher in every case for the depressed as compared to embanked.


Probability Estimated
Situation C
Depressed 30%
Embanked 10%
Situation B
Depressed 60%
Embanked 60%
Situation A
Depressed 10%
Embanked 30%
Population
92,000
90,000
88,000
86,000
84,000
82,000
80,000
78,000
76,000
74,000
72,000
70,000
1968
1972
1975
1980
1985
1990


Probability Estimates
Situation C
Depressed 30%
Embanked 10%
27,000
25,000
23,000
Situation B
Depressed 60%
Embanked 60%
21,000
Situation A
Depressed 10%
Embanked 30%
19,000
17,000
15,000
No. Jobs
1968
1972
1975
1980
1985
1990

SITUATION A, EMBANKED: POPULATION, EMPLOYMENT AND LAND USE PROJECTIONS, EMBANKED EXPRESSWAY AND TRANSIT LINE, SOUTHWEST CORRIDOR STUDY AREA, 1968, 1972, 1975, 1980 AND 1990

	1968	1972	1975	1980	1990
	80,000	76,400	74,900	72,400	69,900
t	19,000	18,000	19,000	19,000	19,000
:			Number		
dwelling units	3,000	2,865	2,810	2,715	2,620
dwelling units	3,750	3,580	3,510	3,395	3,275
ly dwelling units	13,500	12,655	12,405	11,765	11,140
y dwelling units	4,750	4,750	4,750	4,750	4,750
Total	25,000	23,850	23,475	22,625	21,785
Income Distribution			Number		
(in	11,500	10,983	10,767	10,408	10,050
),000 constant	9,660	9,225	9,045	8,742	8,442
% over dollars)	1,840	1,757	1,723	1,665	1,608
Total	23,000	21,965	21,535	20,815	20,100
al:			Square Feet		
ade and Service	1,600,000	1,300,000	1,300,000	1,200,000	1,100,000
-Entertainment	100,000	80,000	80,000	75,000	70,000
	150,000	130,000	130,000	120,000	110,000
	NE	NE	NE	NE	NE
Total	1,850,000	1,510,000	1,510,000	1,395,000	1,280,000
:			Square Feet		
cturing	5,000,000	4,750,000	5,000,000	5,000,000	5,000,000
ile-Distribution	1,000,000	700,000	1,000,000	1,000,000	1,000,000
Total	6,000,000	5,450,000	6,000,000	6,000,000	6,000,000
ent:			Number		
llar	13,000	12,600	13,300	13,680	14,250
Collar	5,000	5,400	5,700	5,320	4,750
Total	19,000	18,000	19,000	19,000	19,000
	6,555	6,210	6,555	6,460	6,315
lled	7,390	7,000	7,390	7,340	7,270
d	5,055	4,790	5,055	5,200	5,415
	19,000	18,000	19,000	19,000	19,000

Table 10. SITUATION A, DEPRESSED: POPULATION, EMPLOYMENT AND LAND USE PROJECTIONS, DEPRESSED EXPRESSWAY AND TRANSIT LINE, SOUTHWEST CORRIDOR STUDY AREA, 1968, 1972, 1975, 1980 AND 1990.

	1968	1972	1975	1980	1990
Population	80,000	78,800	77,200	74,700	72,200
Employment	19,000	18,000	19,000	19,500	20,500
Residential:	----------	----------	Number	----------	----------
1-family dwelling units	3,000	2,970	2,905	2,820	2,700
2-family dwelling units	3,750	3,710	3,630	3,525	3,375
3-4-family dwelling units	13,500	13,365	12,825	12,455	11,700
5+-family dwelling units	4,750	4,750	4,750	4,750	4,750
Total	25,000	24,795	24,110	23,550	22,525
Household Income Distribution	----------	----------	Number	----------	----------
0-5,000 (in	11,500	11,375	11,125	10,810	10,350
5,000-10,000 constant	9,660	9,555	9,345	9,080	8,695
10,000 & over dollars)	1,840	1,820	1,780	1,730	1,655
Total	23,000	22,750	22,250	21,620	20,700
Commercial:	----------	----------	Square Feet	----------	----------
Retail Trade and Service	1,600,000	1,300,000	1,300,000	1,300,000	1,150,000
Cultural-Entertainment	100,000	80,000	80,000	80,000	75,000
Office	150,000	130,000	130,000	130,000	130,000
Parking	NE	NE	NE	NE	NE
Total	1,850,000	1,510,000	1,510,000	1,510,000	1,355,000
Industrial:	----------	----------	Square Feet	----------	----------
Manufacturing	5,000,000	4,750,000	5,000,000	5,000,000	5,000,000
Wholesale-Distribution	1,000,000	850,000	1,000,000	1,000,000	1,000,000
Total	6,000,000	5,600,000	6,000,000	6,000,000	6,000,000
Employment:					
Blue Collar	13,300	12,600	13,300	14,030	14,350
White Collar	5,700	5,400	5,700	5,470	6,150
Total	19,000	18,000	19,000	19,500	20,500
Skilled	6,555	6,210	6,555	6,630	7,070
Semi-skilled	7,390	7,000	7,390	7,535	7,975
Unskilled	5,055	4,790	5,055	5,335	5,455
	19,000	18,000	19,000	19,500	20,500

Table 11. SITUATION B, EMBANKED: POPULATION, EMPLOYMENT AND LAND USE PROJECTIONS, EMBANKED EXPRESSWAY AND TRANSIT LINE, SOUTHWEST CORRIDOR STUDY AREA, 1968, 1972, 1975, 1980 AND 1990

	1968	1972	1975	1980	1990
opulation	80,000	79,200	78,600	77,600	76,600
mployment	19,000	18,000	19,000	19,500	21,000
esidential:	----------	----------	Number	----------	----------
1-family dwelling units	3,000	2,970	2,945	2,910	2,875
2-family dwelling units	3,750	3,715	3,685	3,640	3,590
3-4-family dwelling units	13,500	13,365	13,260	12,855	12,690
5+-family dwelling units	4,760	4,760	4,760	4,760	4,760
Total	25,000	24,810	24,650	24,165	23,915
lousehold Income Distribution:	----------	----------	Number	----------	----------
0-5,000 (in	11,500	11,385	11,300	11,155	11,015
5,000-10,000 constant	9,660	9,565	9,490	9,370	9,250
10,000 & over dollars)	1,840	1,820	1,810	1,785	1,760
Total	23,000	22,770	22,600	22,310	22,025
Commercial:	----------	----------	Square Feet	----------	----------
Retail Trade and Service	1,600,000	1,300,000	1,300,000	1,300,000	1,300,000
Cultural-Entertainment	100,000	100,000	100,000	100,000	100,000
Office	150,000	150,000	150,000	150,000	150,000
Parking	NE	NE	NE	NE	NE
Total	1,850,000	1,550,000	1,550,000	1,550,000	1,550,000
ndustrial:	----------	----------	Square Feet	----------	----------
Manufacturing	5,000,000	4,750,000	5,000,000	5,100,000	5,250,000
Wholesale-Distribution	1,000,000	850,000	1,000,000	1,030,000	1,100,000
Total	6,000,000	5,600,000	6,000,000	6,130 000	6,350,000
Employment:	----------	----------	Number	----------	----------
Blue Collar	13,300	12,600	13,300	13,650	14,700
White Collar	5,700	5,400	5,700	5,850	6,300
Total	19,000	18,000	19,000	19,500	21,000
Skilled	6,555	6,210	6,555	6,725	7,215
Semi-skilled	7,390	7,000	7,390	7,585	8,200
Unskilled	5,055	4,790	5,055	5,190	5,585
Total	19,000	18,000	19,000	19,500	21,000

Table 12. SITUATION B, DEPRESSED: POPULATION, EMPLOYMENT AND LAND USE PROJECTIONS, DEPRESSED EXPRESSWAY AND TRANSIT LINE SOUTHWEST CORRIDOR STUDY AREA, 1968, 1972, 1975, 1980 AND 1990.

	1968	1972	1975	1980	1990
opulation	80,000	80,000	80,000	80,000	80,000
mployment	19,000	18,000	19,000	20,000	22,000
esidential:			Number		
1-family dwelling units	3,000	3,000	3,000	3,000	3,000
2-family dwelling units	3,750	3,750	3,750	3,750	3,750
3-4-family dwelling units	13,500	13,500	13,500	13,500	13,500
5+-family dwelling units	4,760	4,760	4,760	4,760	4,760
Total	25,000	25,000	25,000	25,000	25,000
lousehold Income Distribution:			Number		
0-5,000 (in	11,500	11,500	11,500	11,500	11,500
5,000-10,000 constant	9,660	9,660	9,660	9,660	9,660
10,000 & over dollars)	1,840	1,840	1,840	1,840	1,840
Total	23,000	23,000	23,000	23,000	23,000
ommercial:			Square Feet		
Retail Trade and Service	1,600,000	1,300,000	1,300,000	1,300,000	1,300,000
Cultural-Entertainment	100,000	100,000	100,000	100,000	100,000
Office	150,000	150,000	150,000	150,000	150,000
Parking	NE	NE	NE	NE	NE
Total	1,850,000	1,550,000	1,550,000	1,550,000	1,550,000
ndustrial:			Square Feet		
Manufacturing	5,000,000	4,750,000	5,000,000	5,200,000	5,400,000
Wholesale-Distribution	1,000,000	850,000	1,000,000	1,070,000	1,140,000
Total	6,000,000	5,600,000	6,000,000	6,270,000	6,540,000
mployment:			Number		
Blue Collar	13,300	12,600	13,300	14,000	15,400
White Collar	5,700	5,400	5,700	6,000	6,600
Total	19,000	18,000	19,000	20,000	22,000
Skilled	6,555	6,210	6,555	6,900	7,590
Semi-skilled	7,390	7,000	7,390	7,780	8,560
Unskilled	5,055	4,790	5,055	5,320	5,850
Total	19,000	18,000	19,000	20,000	22,000

Table 13. SITUATION C, EMBANKED: POPULATION, EMPLOYMENT AND LAND USE PROJECTIONS, EMBANKED EXPRESSWAY AND TRANSIT LINE, SOUTHWEST CORRIDOR STUDY AREA, 1968, 1972, 1975, 1980 AND 1990

	1968	1972	1975	1980	1990
Population	80,000	80,200	82,900	85,000	89,000
Employment	19,000	20,300	21,500	23,370	27,230
Residential:			Number		
1-family dwelling units	3,000	3,009	3,109	3,187	3,237
2-family dwelling units	3,750	3,760	3,887	3,984	4,172
3-4-family dwelling units	13,500	13,530	13,991	14,342	15,017
5+-family dwelling units	4,750	4,761	4,923	5,047	5,384
Total	25,000	25,060	25,910	26,560	27,810
Household Income Distribution:			Number		
0-5,000 (in	11,500	11,530	11,918	12,220	12,795
5,000-10,000 constant	9,660	9,685	10,011	10,248	10,748
10,000 & over dollars)	1,840	1,845	1,906	1,952	2,047
Total	23,000	23,060	23,835	24,440	25,590
Commercial:			Square Feet		
Retail Trade and Service	1,600,000	1,600,000	1,600,000	1,650,000	1,750,000
Cultural-Entertainment	100,000	100,000	100,000	110,000	120,000
Office	150,000	150,000	250,000	350,000	650,000
Parking	NE	NE	NE	NE	NE
Total	1,850,000	1,850,000	1,950,000	2,110,000	2,520,000
Industrial:			Square Feet		
Manufacturing	5,000,000	5,400,000	5,600,000	5,800,000	6,400,000
Wholesale-Distribution	1,000,000	1,100,000	1,100,000	1,150,000	1,200,000
Total	6,000,000	6,500,000	6,700,000	6,950,000	7,600,000
Employment:			Number		
Blue Collar	13,300	14,210	14,835	15,660	17,700
White Collar	5,700	6,090	6,665	7,710	9,530
Total	19,000	20,300	21,500	23,370	27,230
Skilled	6,555	7,005	7,470	8,240	9,735
Semi-skilled	7,390	7,895	8,390	9,180	10,770
Unskilled	5,055	5,400	5,640	5,950	6,725
Total	19,000	20,300	21,500	23,370	27,230

Table 14. SITUATION C, DEPRESSED: POPULATION, EMPLOYMENT AND LAND USE PROJECTIONS, DEPRESSED EXPRESSWAY AND TRANSIT LINE, SOUTHWEST CORRIDOR STUDY AREA, 1968, 1972, 1975, 1980 AND 1990.

	1968	1972	1975	1980	1990
Population	80,000	81,000	83,500	86,000	91,000
Employment	19,000	20,500	21,700	23,600	27,500
Residential:	----------	----------	Number	----------	----------
1-family dwelling units	3,000	3,032	3,126	3,220	3,407
2-family dwelling units	3,750	3,790	3,908	4,025	4,259
3-4-family dwelling units	13,500	13,646	14,067	14,488	15,330
5+-family dwelling units	4,750	4,802	4,949	5,097	5,394
Total	25,000	25,270	26,050	26,830	28,390
Household Income Distribution:	----------	----------	Number	----------	----------
0-5,000 (in	11,500	11,625	11,740	11,600	11,754
5,000-10,000 constant	9,660	9,765	10,303	10,859	11,754
10,000 & over dollars)	1,840	1,860	1,917	2,221	2,612
Total	23,000	23,250	23,960	24,680	26,120
Commercial:	----------	----------	Square Feet	----------	----------
Retail Trade and Service	1,600,000	1,600,000	1,600,000	1,700,000	1,800,000
Cultural-Entertainment	100,000	100,000	100,000	110,000	125,000
Office	150,000	150,000	250,000	400,000	750,000
Parking	NE	NE	NE	NE	NE
Total	1,850,000	1,850,000	1,950,000	2,210,000	2,675,000
Industrial:	----------	----------	Square Feet	----------	----------
Manufacturing	5,000,000	5,400,000	5,600,000	5,900,000	6,700,000
Wholesale-Distribution	1,000,000	1,100,000	1,100,000	1,200,000	1,300,000
Total	6,000,000	6,500,000	6,700,000	7,100,000	8,000,000
Employment:	----------	----------	Number	----------	----------
Blue Collar	13,300	14,350	14,970	15,810	17,875
White Collar	5,700	6,150	6,730	7,790	9,625
Total	19,000	20,500	21,700	23,600	27,500
Skilled	6,555	7,070	7,540	8,320	9,830
Semi-skilled	7,390	7,975	8,470	9,275	10,875
Unskilled	5,055	5,455	5,690	6,005	6,795
Total	19,000	20,500	21,700	23,600	27,500

PART B

ANALYSIS OF ALTERNATIVE LAND USE PLANS

This Part B analysis contains four major sections and sequentially follows Part A which contains population and employment projections for the Southwest Corridor Study Area. The first section in Part B presents background materials which relate, in part, directly to design impacts, and some of which are addressed to the impacts associated with an improved transportation system. This latter point considers the broad implications of better access into and from the corridor area. The second section of Part B deals with the four alternative land use plans confined to the right-of-way prepared by the BRA staff.

The third section addresses the full one-by-three mile corridor area. Consideration is given to the immediate impact Zone A, defined as an area approximately one block or 250 feet on either side of the right-of-way and to Zone B, the remainder of the corridor area, which is most directly affected by the transportation system. Finally, in the fourth section, overall corridor development and land use are examined in relation to projections developed earlier in Part A.

I. Background

Our assignment was to evaluate the differential impacts of an embanked as compared to a depressed freeway design on the Southwest Corridor Study Area. The existance of an improved transportation system has been given, therefore, and has implicitly been considered under both the embanked and depressed design analysis, as submitted.

It is appropriate, however, to explicitly identify key impacts that are associated with an improved transportation system.

One such impact relates to commercial activity that is currently located within the corridor. Presently existing commercial centers are located at Dudley Square, Jackson Square, Egleston Square, areas along Washington Street, and areas along Centre Street. All of these areas will be affected by the new transportation system. The removal of the transit line from the Washington Street location will decrease the potential of this area for commercial use and will simultaneously increase its potential for residential use, especially at medium to high densities -- 20 to 80 dwelling units per acre. Similarly, moving the Dudley Square station to Roxbury Crossing will decrease the commercial activity at Dudley Square and increase it at Roxbury Crossing. The location of a station at Jackson Square will increase its commercial potential and will draw activity from the current Centre Street commercial firms as well as from the Washington Street firms.

The improved transportation corridor will also affect land values. Our analysis shows in every case reviewed that land values increased as a result of an improved transportation corridor, independent of facility design. Most common are cases of elevated expressways where land values in and about the expressway vicinity uniformly increased. In many of these cases land use shifted from residential to commercial or industrial within a ten-year period. In cases where land use remained residential it typically shifted to higher densities in extension and as a reflection of its increasing land vaules.

Analysis of the specific differential effects of an embanked and depressed facility on land values in the Southwest Corridor would require extensive analysis including noise measurements, visibility analysis and community attitudes, as well as parcel appraisals. Such an analysis is outside the scope of the present contract. It is our judgment, however, based on review of the Southwest Corridor area and the broadly comparable experience in similar circumstances that most properties in the immediate impact zone -- that area one block or 250 feet on either side of the right-of-way -- should show increased values as a result of the improved transportation system and independent of the design of the freeway.

The existing railroad embankment designated as the part of the proposed right-of-way, as a matter of history, has affected land use development in the corridor and especially in the immediate impact zone. Our analysis in Part A assumes that a barrier would continue to exist between the east and west portions of the corridor when the design of the freeway is embanked. Because the present contract explicitly specified that the differential effects of an embanked as compared to a depressed design be analyzed, the new facilities along the present railroad embankment with its historic and already expressed impact was fully considered as a basic and given factor in our analysis. The depressed design alternative, in contrast, assumes that the 50-year-old embanked railroad right-of-way would be removed. The land use impacts as previously expressed in quantitative terms in Part A takes these points into full account.

The following section sets forth our analysis of the four joint development alternatives for the right-of-way area.

II. Right-of-Way Analysis

The four joint development plans for the right-of-way (ROW) are considered in this section. Two of the four plans, depressed industry and embanked industry, contain substantially the same land use mix. The existing land use in the ROW has been dramatically affected by the proposed transportation system and by recent purchases associated with the system. The present land use is not relevant to consider in conjunction with the proposed plans mapped and included at the conclusion of Part B. The following table shows the approximate percentage distribution of land use for the alignment area for each of the joint development alternatives. The total acreage of land involved in the right-of-way is estimated at 180 acres.

Table 15. PERCENTAGE DISTRIBUTION OF LAND USES FOR THE RIGHT-OF-WAY AREA BY JOINT DEVELOPMENT PLAN ALTERNATIVES

	Percentage Mix			
	Depressed Design		Embanked Design	
Use Type	Industry-Oriented	Housing-Oriented	Industry-Oriented	Housing-Oriented
Housing	5%	30%	0%	5%
Industrial	15	0	20	0
Commercial	35	40	35	45
Open Space	20	15	20	25
Community Facilities	10	5	20	5
Transportation	15	10	15	20
ROW Total (180 acres)	100%	100%	100%	100%

The above table illustrates a similar range of land use types for each of the design alternates. The key differential appears in the Depressed-Housing (D-H) as compared to the Depressed-Industry (D-I) and the Embanked-Industry (E-I). In these cases the housing and industry mix shifts, while other use "shares" remain substantially unaffected.

Following is a discussion of key location factors along right-of-way segments. Commercial, industrial and housing uses are highlighted.

- Commercial activity will occur in three segments along the right-of-way under the staff proposals. These include Segments 2, 4 and 8. Segment 4 contains Jackson Square and will become a more significant commercial center as a result of the transit station located there. It will attract shoppers from the existing Centre Street and Washington Street strip developments as well as from Egleston Square. The emphasis at this segment is appropriately commercial in our judgment.

  Similarly, at Segment 8, we believe that because of the improved transportation system this area will support substantial new commercial development in a range from 250,000 to 500,000 square feet. This development could relocate that impacted along Washington Street and would service those using the on-off ramps to the freeways as well as the transit station located in Segment 8. Segment 2 contains Roxbury

Crossing and can appropriately provide another area of commercial development. However, due to its odd shape and the facilities that currently exist about it, the northern part of Segment 2 should be utilized to bring together the public housing on the west and the new planned Campus High facility. On the south portion of Segment 2 some modest amount -- 20,000 to 40,000 square feet -- of commercial development would be suitable. Housing located to the southeast should be buffered from the freeway with either open space or a community facility.

- The industrial concentrations along the right-of-way are focused at two points: the east sides of Segment 5 and Segment 7. The long, narrow configuration in both of these segments requires that a buffer zone separate existing industry from the housing areas to the west. At the present time, the railroad embankment effectively separates the industries from the residential areas. If the embankment remains, it will continue to act as a buffer. If the freeway design is depressed, however, open space and screen planting would be used to separate the present industry from the residential neighborhoods. Newer modern industry would possibly replace the existing structures and avert the need for screening.

- Residential areas make up the dominant remaining area along the right-of-way. Recent experiences with urban freeways demonstrate that these residential areas can be expected to become less desirable at a low density and more desirable at a high density in the event an embanked expressway is decided upon. If the freeway design is depressed, then lower-density housing would offer the possibility of blending with the existing residential areas on both sides of the right-of-way. These observations would ultimately have to be "tested" against economic factors in joint development construction as well as other area development objectives.

Thus far, the right-of-way alternate land use plans have been discussed in terms of corridor development factors, and the scale and configuration of various industry, commercial and housing uses in the areas immediately surrounding the right-of-way. For convenience the four land use plans are included in a separate folder inserted at the back of the report. In the remainder of the report, these plans will be referred to as follows:

D-H - Depressed Corridor - Housing emphasis (Transit A)*

D-I - Depressed Corridor - Industry emphasis (Transit B)*

E-H - Embanked Corridor - Housing emphasis (Transit A)

E-I - Embanked Corridor - Industry emphasis (Transit B)

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*See the maps for the different transit station locations.

III. Segment Analysis

In the following paragraphs each segment is analyzed in terms of the four alternative joint development plans for the right-of-way.

Segment 1 - The land use proposal here is the same for all alternatives. The open space areas projected for the ROW will enhance the housing and community facility development both existing and planned adjacent to this segment.

Segment 2 - The four alternatives are basically the same. The limited commercial area proposed -- about three acres in each case -- is too small to permit extensive commercial development. The area, based on scale and indicated development potentials, would be most suited to convenience activities. This program should be coordinated with possible commercial development in the Campus High project, however. The limited housing use designated in the E-H alternative is situated between community facilities on the west and industry on the north. In our judgment, this use should be removed. The more extensive housing designation in Alternative D-H is more appropriate. However, specific attention should be given to the cost of development using air-rights as designated in this alternative. The underrights development, as proposed in connection with the two embanked alternatives, is not clear since underrights

development is most typically suited for parking or perhaps for a playground purpose.

Segment 3 - The housing areas designated in the two embanked alternatives are too small to warrant consideration, in our opinion. The D-H alternative, however, provides two one-acre parcels that would permit meaningful housing development in each.

Segment 4 - We believe this area should serve as the point of commercial emphasis in the northern part of the corridor area. The site contains some eight acres and would permit rather extensive development associated with the limited nearby commercial development. Again, the underrights development in the embanked alternatives would primarily be parking for the commercial development. The depressed alternatives would permit more extensive development than the embanked. The housing designations in D-H are small and consideration should be given to commercial space at these points as an alternative.

Segment 5 - The long, narrow shape of this strip precludes substantial development activity unless the design is depressed and covered. Thus, alternative D-H permits a suitable development solution on the south half of the segment. On the north half, the present embankment separates the industry on the east

from the housing on the west. If the freeway is depressed, other barriers should be considered. Extensive open space is one possible solution. The underrights industrial development shown on alternative E-I and, similarly, the underrights open space and community facility development on E-H do not appear appropriate except for adjunct parking or open recreation area.

Segment 6 - Commercial activity here should be limited to neighborhood facilities. The underrights commercial, open space and community facility development in the embanked alternatives again do not appear appropriate except as above noted. The land use scheme represented in D-H fits well into the present texture of the area as compared to the alternative programs.

Segment 7 - The small narrow strip on the west side of this sub-area appears to be usable only as open space. It would appear too small to develop for housing as illustrated in alternative D-H. The industrial nature of the surrounding area suggests the joint development as proposed in D-I and E-I. Again, buffering solutions should be implemented in the transition area between industry on the east and the residential area on the west.

Segment 8 - Commercial activity should be emphasized in this area as in alternative E-H and D-H. Such development could be supported by the traffic associated with a transit station and the freeway off-on ramp. This site could provide a neighborhood and community shopping center. There would be tributary and purchasing power to replace facilities impacted on Washington Street when the elevated is removed. More than 100,000 square feet of commercial space near Forest Hills north along Washington Street will be seriously and negatively affected by the removal of the elevated. Again, the underrights development proposed in E-H and E-I does not appear suitable except as parking.

Segment 9 - This area contains only five acres in all. Alternative E-I and D-I utilize this acreage for four different uses, as compared to three uses in E-H and two uses in D-H. The housing emphasis alternatives appear to have better land use possibilities, especially the D-H alternative. Since commercial development should be emphasized in Segment 8 to the north, a continued residential emphasis in this area would be appropriate, thereby blending into the school located on the west side and the housing area to the east.

IV. Corridor Impact Analysis

In this section the differential impact of the proposed transportation right-of-way on the area 250 feet immediately adjacent to both sides of the right-of-way is initially considered. This will be referred to subsequently as Zone A. The area outside this strip comprises the remainder of the corridor and will be referred to subsequently as Zone B. The Zone A impact are closely related to freeway design while the Zone B impacts are more directly related to growth or decay in the corridor area as a whole and will be dealt with more specifically in the subsequent paragraphs in this section of the report.

Corridor Analysis: Zone A

In general an embanked design can be expected to affect the Zone A existing land use more dramatically than a depressed design. However, since an embanked facility already exists, there will be less impact for an embankment in the Southwest Corridor Study Area as compared to a depressed design. The embanked design would be compatible with Zone A land uses in the industrial, some of the commercial and the more dense housing categories, but the depressed solution would also be compatible with lower-density housing alternatives as well.

The following table summarizes the existing general land characteristics now found in the Zone A strips on either side of the right-of-way.

Table 16. EXISTING GENERAL LAND USE DISTRIBUTION, ZONE A

Use	Percent	Acres
Housing	55%	100
Industrial	20	35
Commercial	5	10
Open Space	5	10
Community Facilities	10	15
Vacant	5	10
TOTAL	100%	180

The combined industrial and commercial use totals 25 percent for the Zone A land area at present. This present use, in overall terms, would be benefited by an embanked expressway since visibility to these sites would enhance their value. However, a depressed design would be most compatible with the 75 percent of the land area in Zone A now utilized for housing and housing-related purposes. Put another way, since a railway embankment currently divides the area, the immediate impact zone could be made more suitable for these existing residential purposes by removing the embankment and depressing the transportation facility.

In both the embanked and depressed cases, land values in Zone A could be expected to increase, as discussed earlier in overall terms. The principal basis for these increases would be the anticipation of higher value use and density development opportunities potentially available in the Zone A areas. These value gains imply land use changes, however, in the adjacent areas, as distinct from those now existing in the area.

The analysis below of Zone A refers to each of the nine designated segments as depicted on the four alternative joint development plans. Zone A refers solely to the area and uses within approximately 250 feet of either side of the right-of-way, divided into nine subareas corresponding to the ROW segments shown.

Segment A-1 - Housing and community facilities -- based on the Campus High renewal plan -- are the projected land uses for the immediate impact zone. Both of these uses would be substantially enhanced by the depressed design. They could be very negatively affected by embanked solutions depending on the transportation facility design as well as final project area layout.

Segment A-2 - Zone A contains housing, industry, and community facilities. Since an embanked expressway would produce increased visibility potential for the industrial locations, only that land use would be more enhanced by an embanked design as compared to the depressed design for the other uses in the area.

Segment A-3 - This segment is now bordered almost completely by housing. Thus, a depressed design would be the better solution for this segment of the right-of-way, in terms of the existing use patterns.

Segment A-4 - Some two-thirds of Zone A associated with this segment now contains housing with limited industry

and open space areas. The proximity of this area to Segment A-3 suggests that a depressed solution would be more appropriate here. With an interchange planned at this point, the potential for commercial development both within and nearby the alignment would be enhanced, even apart from the specific alignment design.

Segment A-5 - Except for a strip of industrial development to the north of the alignment within Zone A, the remainder of the area is residential. Again, the extensive residential uses here and on adjacent segments suggest a depressed design as more appropriate in relation to existing uses. Such a design would, in addition, help to fortify the commercial development in Segment A-4.

Segment A-6 - Zone A contains mixed land uses. However, the predominant use is residential. Commercial land uses are present here, however, and they could be enhanced by an embanked solution.

Segment A-7 - The predominant land use in this segment is for industrial purposes. Specifically, all of Zone A to the east of the right-of-way is in industrial use and most of Zone A to the west is in residential use. This mixed use has been made feasible as a result of the present embankment that exists. For Zone A on both sides of the right-of-way to continue effectively

in their present use would require a visible barrier -- similar to the embanked freeway design or an extensive, screened open space area or a change in the type of industry into modern low standing structures.

Segment A-8 - Zone A is quite heterogeneous, having substantial areas of housing to the west, industry to the northeast and community facilities at scattered locations. Since an interchange is planned at this location, regardless of alignment design, commercial and industrial use should be emphasized. This emphasis in turn would lead to the embanked solution because of the visibility factor.

Segment A-9 - Existing land use in Zone A is primarily for housing purposes. A school is in the planning stages for a location to the west of the alignment. The residential nature of Zone A would call for a depressed design solution based on the points previously set forth.

Corridor Analysis: Zone B

As a result of the four alternative joint development plans confined to the right-of-way, the corridor has been divided into three zones for purposes of this report. In brief recap, these are:

- The right-of-way area containing the projected transportation facilities.

- The immediate impact Zone A, located generally within a line 250 feet on either side of the right-of-way.
- The remainder of the one-by-three mile corridor area, designated Zone B.

This section of the report deals with the remaining, or Zone B, portions of the corridor and the impact of an embanked as compared to depressed right-of-way.

The Zone B considerations are essentially related to the overall future of the corridor area. The prospects for development of the area have been dimensioned in terms of population, employment and land uses in a three-level range discussed in Part A and will be more fully discussed in the following section.

In overall terms, if a stagnant to declining situation continues in the corridor -- based on all the factors previously indicated -- then Zone B land can be expected to continue to deteriorate and the area will become a less desirable place to live, work and shop. If, in contrast, past stagnation were to be arrested and the area's development stabilized, then replacement and rehabilitation will have to occur at a pace to maintain the quantity and quality of present housing, industry and commercial activity. Finally, if the corridor area were to participate in overall metropolitan growth patterns -- a result that could be expected if the transportation facility were depressed and if other programs previously discussed were to function at highly effective levels -- then commercial activity would accelerate so that Dudley Square would become a more vital area. Together with the additional commercial facilities proposed for the Campus

High area and the Jackson Crossing, Forest Hills and Centre Street strip could potentially expand and upgrade. Further, the demand for industrial land could be expected to increase potentially beyond the availability of suitable vacant area within the corridor as presently defined. Finally, housing needs could be expected to increase in response to household gains requiring utilization of vacant land and areas near the right-of-way as well as elsewhere in the corridor area for residential purposes.

The specific interrelationship of the four joint development plans submitted by the BRA and the projected situations for the corridor are subsequently discussed in further detail.

The following tabulation outlines the present and future development factors by key sub-areas in the corridor. This outline underscores the wide range of public program activity that is currently planned and is already in operation in the corridor.

CORRIDOR REDEVELOPMENT FACTORS

Corridor Sub Area	Development Activity	Comments
Northeastern - (The four quadrants - N-S of proposed interloop & E-W of railroad)	Current:	
	1. Renewal Activity	1. Three Renewal Areas.
	2. Public Housing	2. Presently 2200 dwelling units of public housing, built in the 40's and early 50's, exist. No additional housing is proposed.
	3. 221 D-3	3. 700 dwelling units of 221 D-3 housing are proposed.
	4. Campus High School, in Model City subarea 2	4. A 35 acre site to be open 1972 or 1973 & additional 15 acres; includes 400 new housing units.
	Future:	
	1. Most of the area is already committed or planned	
	2. Open space and playgrounds over or under freeway	
Roxbury Crossing - Jackson Square (South to Boylston St.)	Current:	
	1. Renewal GNRP areas	1. Parker Hill - Fenway & Jamaica Plain GNRP and Washington Park Renewal
	2. Housing	2.
	a) Public	a) 1150 dwelling units built in 1942 & 1954 with 64 elderly units built in 1962.
	b) 221 D-3	b) 650 units recently occupied with 140 proposed.
	c) "infill"	c) a number of vacant lots with 80 dwelling units proposed.
	3. Model City	3. Sub-areas 1&2 make up most of the area east of the proposed freeway.

CORRIDOR REDEVELOPMENT FACTORS (Continued)

Corridor Sub-Area	Development Activity	Comments
	4. Code Enforcement Area	4. The Southern section west of the proposed freeway lies in the Jamaica Plain enforcement area.
	5. Industrial	5. Sites exist primarily along the railroad. Two large sites exist in the northeastern corridor of this section.
	6. Commercial	6. Two large commercial centers-Egleston Square and Dudley Square -- nearly contain about 1,000,000 square feet of commercial space. (About one-half of commercial space in the study area)
	7. Residential	7. Many older poor condition residences concentrated east of the right-of-way. Many multi-family units are located in the area including 1150 public housing units and 650 units built under 221 D-3 financing.

Future:

1. A complete off-on ramp will provide easy access to and from this section. Light industry along the right-of-way with wholesale establishments.

2. Removing the Washington Street elevated will hurt the commercial establishments, especially at Egleston Square and Dudley Station. Jackson Square will become a focus for transit passenger trade as will Roxbury Crossing. Commercial sites at these new stations will have a ready made demand for their product. The remaining sites along Washington Street should be improved or demolished as Model Cities and Washington Park renewal programs indicate.

CORRIDOR REDEVELOPMENT FACTORS

Corridor Sub-Area	Development Activity	Comments
	3. A number of residential sites are located near the proposed freeway. Development possibilities to improve the residential atmosphere should be located over or under the freeway.	
Forest Hills area to Arborway	Current:	
	1. GNRP - code enforcement Model City area	1. Jamaica Plain GNRP, the Jamaica Plain Improvement area and Model City sub-area.
	2. Housing a) Public	2. a) 132 dwelling units built in 1953, and 44 elderly units built in 1962.
	b) 221 D-3	b) 108 dwelling east of the proposed freeway.
	c) "Infill"	c) a limited number of sites (9) exist in this section.
	3. Commercial Areas	3. Limited primarily to scattered sites to Washington Street and a concentrated site on Centre Street. Has good potential if Transit Plan A is followed.
	4. Industrial Areas	4. Large sites near Arborway and Washington Street and the Railroad. Oil companies and MBTA are the major tenants.
	5. Residential	5. This area contains primarily single and two family detached dwellings. Most were built prior to 1940.

Corridor Sub-Area	Development Activity	Comments
	Future:	
	1. The right-of-way will remove a number of existing industrial sites, especially the oil companies. Since an on-off ramp exists at the Arborway this section will have ready access to the metro area.	
	2. The removal of the Washington Street elevated will present an opportunity to re-develop the area into limited commercial and residential use.	
	3. Since the current major land use in the section is residential this should be re-enforced by the freeway. Care should be given to the freeway design to permit continued residential use.	
Walk Hill area (Arborway to walk Hill Street)	Current:	
	1. Housing	1.
	a) Public	a) Presently there are 288 units that were built in 1951. 140 elderly units are proposed for future completion.
	b) 221 D-3	b) No sites are in or proposed for the area, however, 138 units exist just south of the area.
	c) "Infill"	c) A limited number of possible sites exist. 16 dwelling units are proposed for the area.
	2. Commercial Areas	2. Limited activity in the area, the residents are drawn toward Roslindale to shop.
	3. Residential Areas	4. Except for the public housing, most residences are single or two family units. The building condition is generally good to fair.

Corridor Sub-Area	Development Activity	Comments
	Future: 1. The off-on ramp of Forest Hills will be the nearest access to the freeway. Limited industrial potential exist for this area. 2. If the proposed Walk Hill transit station in Transit Plan B is built, potential shoppers will concentrate in that area; and with the removal of the Washington Street elevated, this area should become more commercially oriented. 3. The area is primarily residential, thus design considerations should strengthen this characteristic of the area.	

V. Overall Corridor Development and Land Use

In the previous materials overall corridor considerations were discussed. The following explicitly considers the relationship between right-of-way design for the proposed transportation facilities and projections of employment and population in the corridor as previously prepared.

Analysis in Part A set forth three projected economic development situations for the Southwest Corridor Study Area. These situations, designated A - stagnant; B - stable; and C - metro share, provided a quantitative framework for projecting corridor land use requirements associated with the embanked versus the depressed designs. As developed in Part A the chance of Situation A occurring was estimated at 20 percent; the chance of Situation B, 60 percent; and the chance of Situation C, 20 percent. See Table 6 for the probability estimates for embanked and depressed corridor design. Also included in Table 8 in Part A are population and employment projections.

Projections of the possibilities facing the corridor are fundamental to an appraisal of the joint development alternative plans. The stagnant situation, our analysis shows, indicates a 60-acre decline in residential demand, a 25-acre decline in commercial demand and no net change in industrial demand. The stable situation projects the following acreage demands on land by 1990: no net change in residential land requirements, a 15-acre reduction in commercial land requirements and a 20-acre increase in industrial land requirements. These data are fully tabulated in Table 7 in Part A.

Should the area share in the metro growth pattern as projected in Situation C, the pressures on land use between the present and 1990 would be as follows: residential acreage requirements -- 110 acres; commercial area requirements -- 10 acres; and industrial area requirements -- 40 acres. The "spillover" land requirement in this case would be 155 acres. (To reiterate, the "spillover" acreage estimate is a measure of excess demand pressures on available land generated by the projected residential, commercial and industrial activity.)

In the following pages each of the alternative prospects for the area is analyzed with a tabular summary outlining land use potentials for each corridor segment. Each alternative is in relation to each of the BRA staff's four joint development plans (which are included at the back of this report).

Situation A Projection

- Open or vacant land can generally be expected to remain unutilized.
- Commercial - Shift from Dudley toward Roxbury Crossing and Jackson Street; and from Washington Street toward Jackson. No additional commercial land needed.
- Housing - Replacements can occur on existing vacant land so that the 283 families in the right-of-way needing replacement housing can be accommodated elsewhere in the corridor without utilizing all the vacant land.
- Industrial - Limited existing industrial acreage will be acquired as part of the right-of-way taking near Forest Hills. This could be replaced near Forest Hills or at other locations where vacant land is available.

SITUATION A

Corridor Segment	Embanked		Depressed	
	Housing	Industry	Housing	Industry
1	Between Mission Hill Projects and Campus Hi-Open space development to tie these together possibly to create evening and weekend community facilities at Campus Hi for use by Mission Hill residents and residents in associated housing complex at Campus Hi -- depressed facility would augment this arrangement.			
2 Roxbury Crossing	Continued population decline projected -- no new housing needs.	No industrial needs -- access at this point make it a desirable industrial and commercial site - attract commercial firms from Dudley.	Continued population decline projected -- no new housing needs.	No industrial needs - access makes for good commercial & industrial site - attract commercial firms from Dudley area to serve new commuter pattern.
3	Continued population decline projected -- no new housing needs.	Continued population decline projected -- no new housing needs.	No housing needs -- ideal housing site	Continued population decline projected -- no new housing needs.
4 Jackson Square	Increased pedestrian traffic and ready on-off access to Freeway makes this a logical industrial-commercial area.	This plan shows desirable use.	Housing in this area is not practical -- no demand in any case.	This plan shows desirable use.
5	The open space and community use is practical -- open space against existing industry is questionable.	Good location for industry if needed -- no needs indicated	Location for transition area on southern portion of area -- however no housing needs	Adjacent to other industries -- no need indicated
6 Green St.	Existing nearby uses in housing and open space indicates additional housing, open space and community facilities as best use -- under Situation A no demand for any of these			
	Transit station creates need for limited commercial			Transit station creates need for limited commercial

Situation A (Cont'd.)

Corridor Segment	Embanked		Depressed	
	Housing	Industry	Housing	Industry
7 McBride Williams	Use for industry, buffer the west side where residences currently exist.		Low building for industrial use on west side with open space buffer for housing on west -- no need in Situation A for either	
8 Forest Hill	Ideal site for industrial commercial development due to access by both transit and freeway.			
		Possible replacement need for industry	No new housing or commercial need.	Possible replacement need for industry.
9	Good access via transit and freeway --- near ORC school - commercial use is possible			
	Add possible wedge of industrial -- keep open space between housing and freeway	Appropriate use if need exists	Continued population decline projected -- no new housing needs.	Good use if industrial need and adequate open space

Situation B Projection

- Commercial - Same as Situation A.
- Housing - Same as Situation A.
- Industrial - An additional 40 acres would be needed to meet projected needs.

Corridor Segment	Embanked		Depressed	
	Housing	Industry	Housing	Industry
1	Between Mission Hill Projects and Campus Hi-Open space development to tie these together possibly to create evening and weekend community facilities at Campus Hi for use by Mission Hill residents and residents in associated housing complex at Campus Hi -- depressed facility would augment this arrangement.			
2 Roxbury Crossing	Activity associated with transit station includes limited commercial -- with some movement from Dudley area to Roxbury.			
	Population stable -- no new housing needs.		Population stable -- no new housing needs.	
3	Population stable -- no new housing needs.	Population stable -- no new housing needs.	Could serve as link between communities on east and west sides of freeway.	
4 Jackson Square	With transit and freeway access this area lends itself to commercial and industrial development.			
	Population stable -- no new housing needs.	Depending on station location --Northwest wedge used for light industrial purposes	Population stable -- no new housing needs.	
5	Since no housing needs -- could use for industrial purposes especially on east side.		Appropriate for housing but none needed	This good freeway access makes this area ideal for industrial purposes -- also location of present industry
6 Green St.	Existing nearby use in housing and open space indicates additional housing, open space and community facilities as best use -- under Situation B no demand for any of these			
	Transit station creates need for limited commercial			Transit station creates need for limited commercial

Situation B (Cont'd.)

Corridor Segment	Embanked		Depressed	
	Housing	Industry	Housing	Industry
7 McBride Williams	Only open space	Location of existing industries make east side an appropriate industrial site	Population stable -- no new housing needs.	East side of freeway for light industry with low buildings
8 Forest Hills	Ideal site for industrial commercial development due to access by both transit and freeway.	Ideal location for industry	No housing or commercial need	Good industrial location with access to freeway
9	The absence of a transit station lessens the need for commercial space	Transit station activity and ready access to freeway suitable for commercial and industrial use	No housing needs and in absence of transit station limited commercial for ORC	Transit and freeway activity create commercial and industrial use and ORC commercial needs

Situation C Projection

- In this case the economy of the corridor area would be rising at the metropolitan Boston rate and substantial pressure on available land would be felt by 1990.

- Commercial:

  - Potential for substantial additional activity requiring between 670,000 and 825,000 square feet of commercial space.

  - Main activity nodes would be at Roxbury Crossing, Jackson Station, and Forest Hills.

  - Roxbury would tend to attract firms from Dudley Square as well as new establishments to meet additional demand.

- Housing:

  - An additional 2,810 units to 3,390 units would be required to meet population growth.

  - Need can be met through more intensive use of land. However, since the SW corridor is presently lower density residential, special emphasis to maintain its environment and character should be considered.

  - Washington Street could offer conversion sites for higher density as well as retaining some neighborhood commercial sites.

- Industrial:

  - Between 1.6 and 2.0 million square feet of additional floor space will be needed.

  - Location near Freeway entrance and exits and high visibility sites will be prime for this purpose.

SITUATION C

Corridor Segment	Embanked		Depressed	
	Housing	Industry	Housing	Industry
1	Open space is good use.		As a transition area between Mission Hill and Campus Hi possible commercial development near cross-overs.	
2 Roxbury Crossing	The small housing area is all that is practical -- heavy pressures for new retail services will lead to substantial commercial development.	This area could be effectively used only for limited commercial purposes--considering moving community facilities to north end.	The community facility on the north could service the Campus Hi area as well as the Mission Hill complex	Move community facilities and use remainder for commercial
3	With the great pressure for residential land the D-H, D-I, and E-H are most appropriate with the depressed facility lending itself best to residential development.			
4 Jackson Square	The heavy need for land will restrict use for community facilities. The transit station will provide the basis for a substantial commercial complex. The freeway access will create additional commercial pressures along with industrial pressures for sites with visibility from the freeway and easy access to it.			
5	The allocation to mostly open space is impractical given the increased population pressures	The north half is used well between industry and open space -- on the south additional residential use is required	Generally good use with additional light industry on the east and north end	Extend industries on east to north and add residential to southern area
6 Green St.	The commercial area associated with transit station is adequate -- pressure for residential and industrial Green St. will limit open space		The substantial residential use is consistent with the projected land pressures	The northern area changed to residential use. Possible air rights development

Situation C (Continued)

Corridor Segments	Embanked		Depressed	
	Housing	Industry	Housing	Industry
7 McBride Williams	Develop industry on East - Transit best at Green Street		Transit at Green Street leaves east side available for industria development with housing in segment 6.	
8 Forest Hills	The emphasis here should be to have industry between Washington Street and right of way with westward transition to housing.			
9	Too much commercial in light of Forest Hill	Good use of site.	Generally good use	Good use of site -- possible air rights for industry

Reference List for Development Factors

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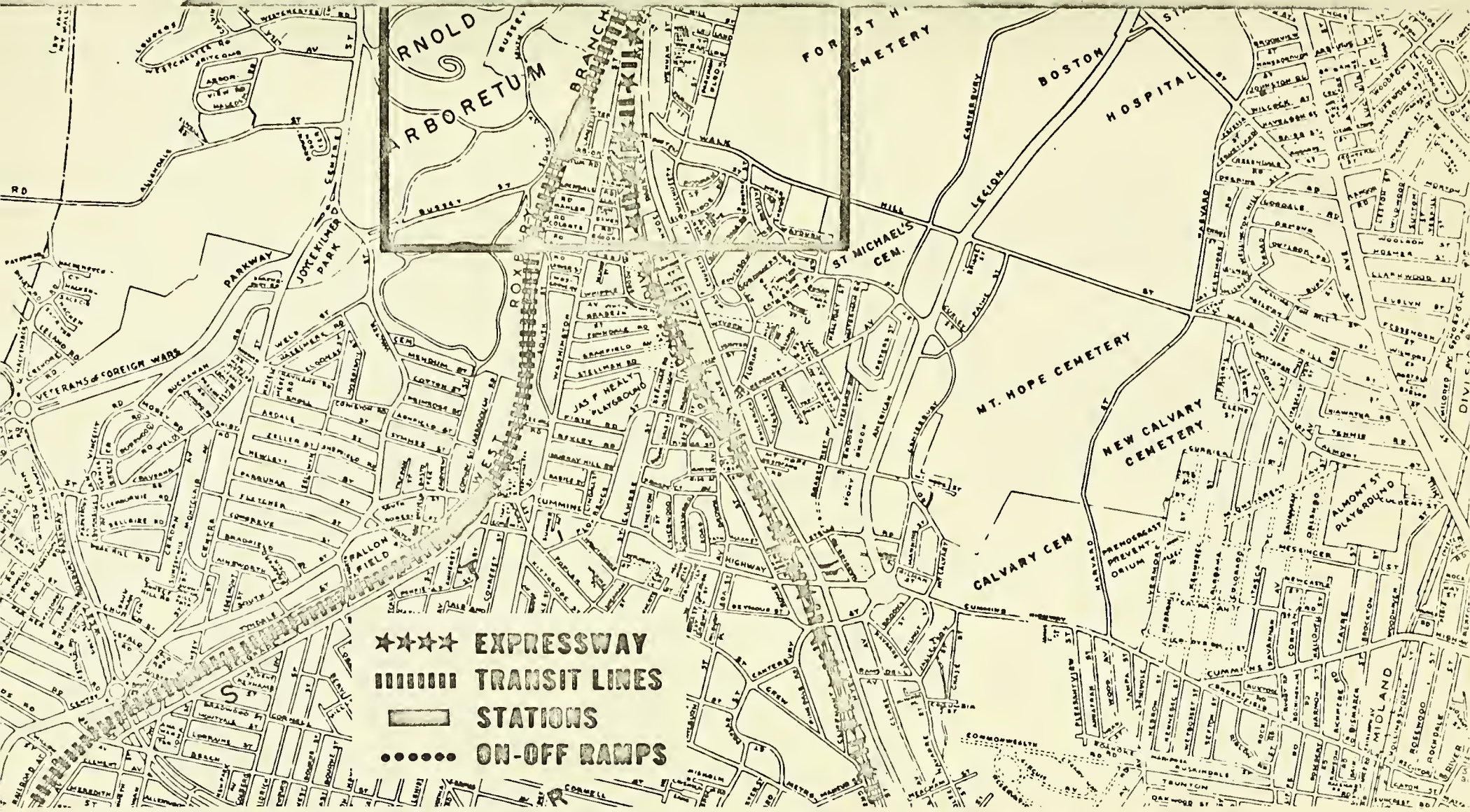
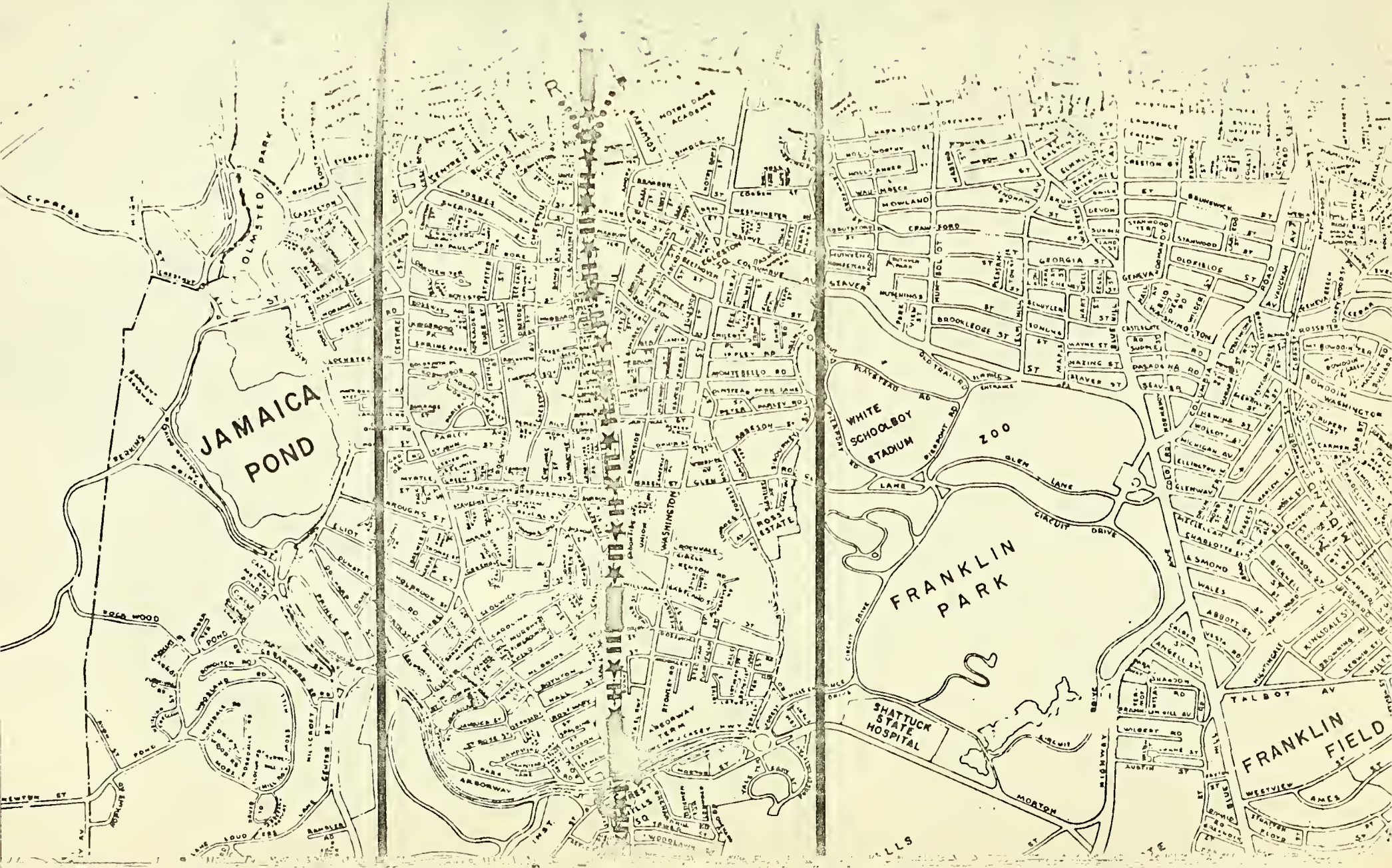
APPENDIX

BACKGROUND MATERIAL



MAP 2 - SOUTHWEST STUDY AREA BASE MAP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MORTON
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SEAVER
WOODLAWN

CHARLES
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BOSTON MUSEUM
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MASSACHUSETTS AVE
NEWMARKET SQ
DIVISION
FITZGERALD
SOUTH AMPTON
DWIGHT ST
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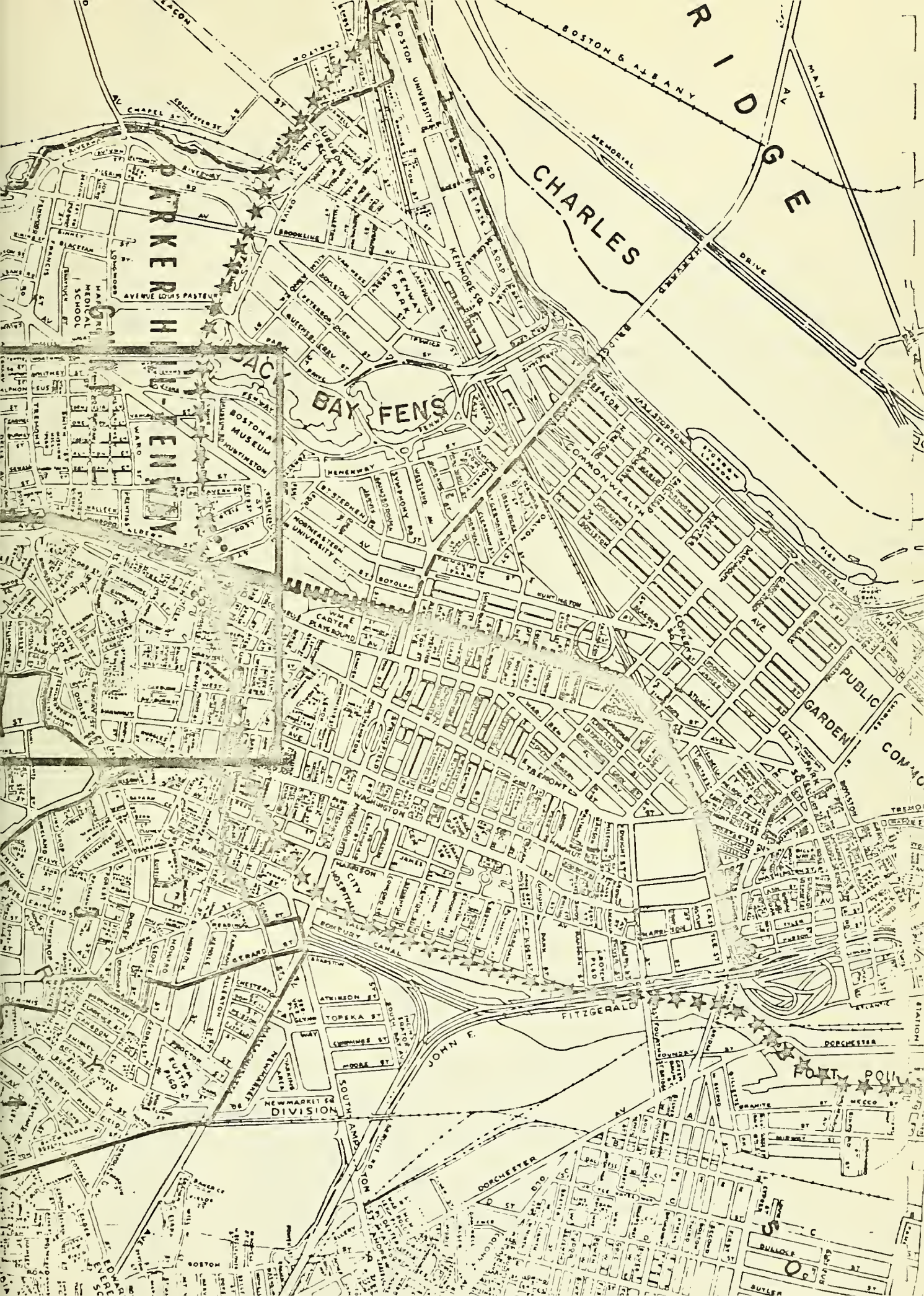
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COMMONWEALTH
PUBLIC GARDEN
BOSTON MUSEUM
NORTHEASTERN UNIVERSITY
CARTER PLAYGROUND
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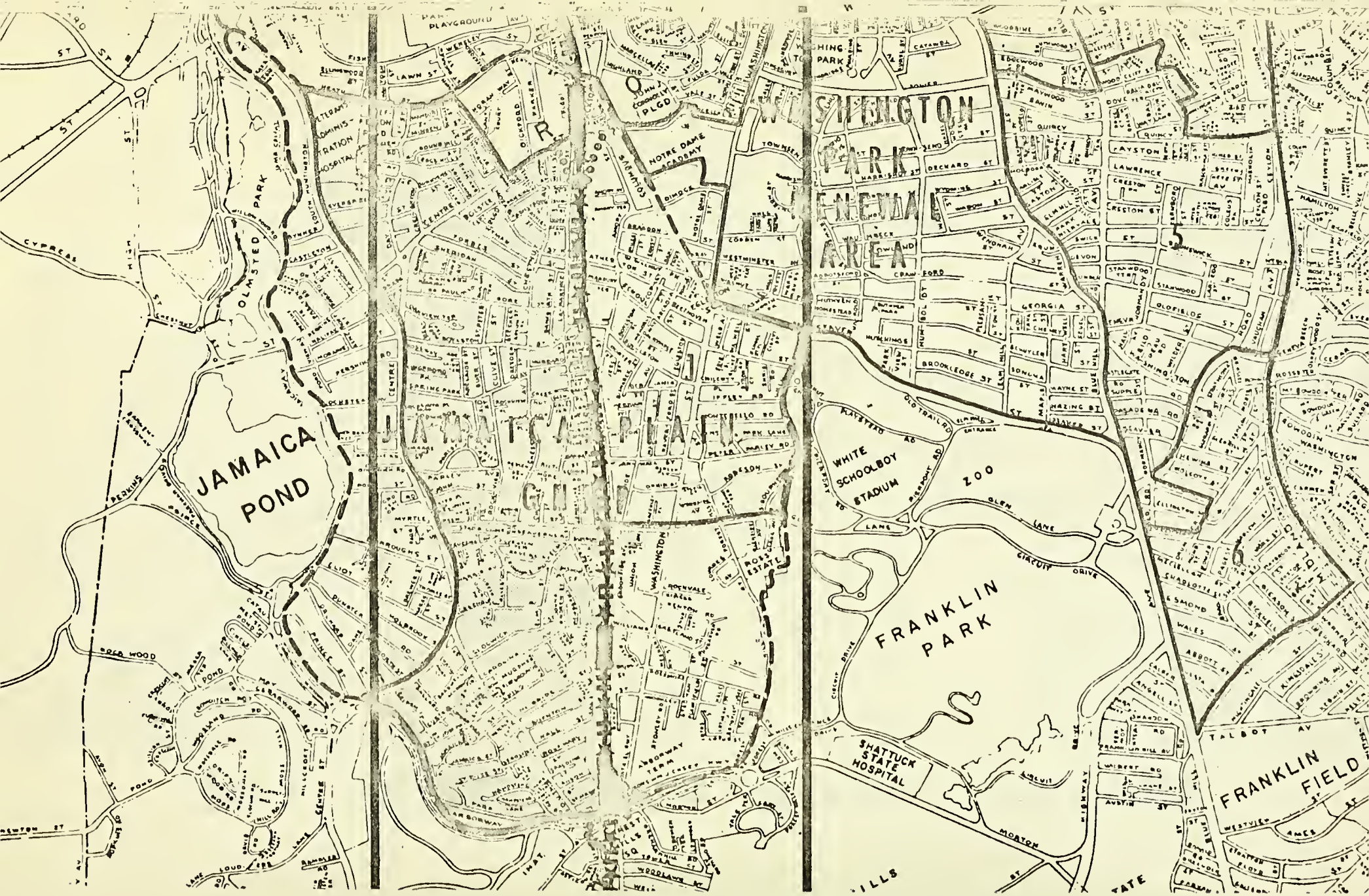
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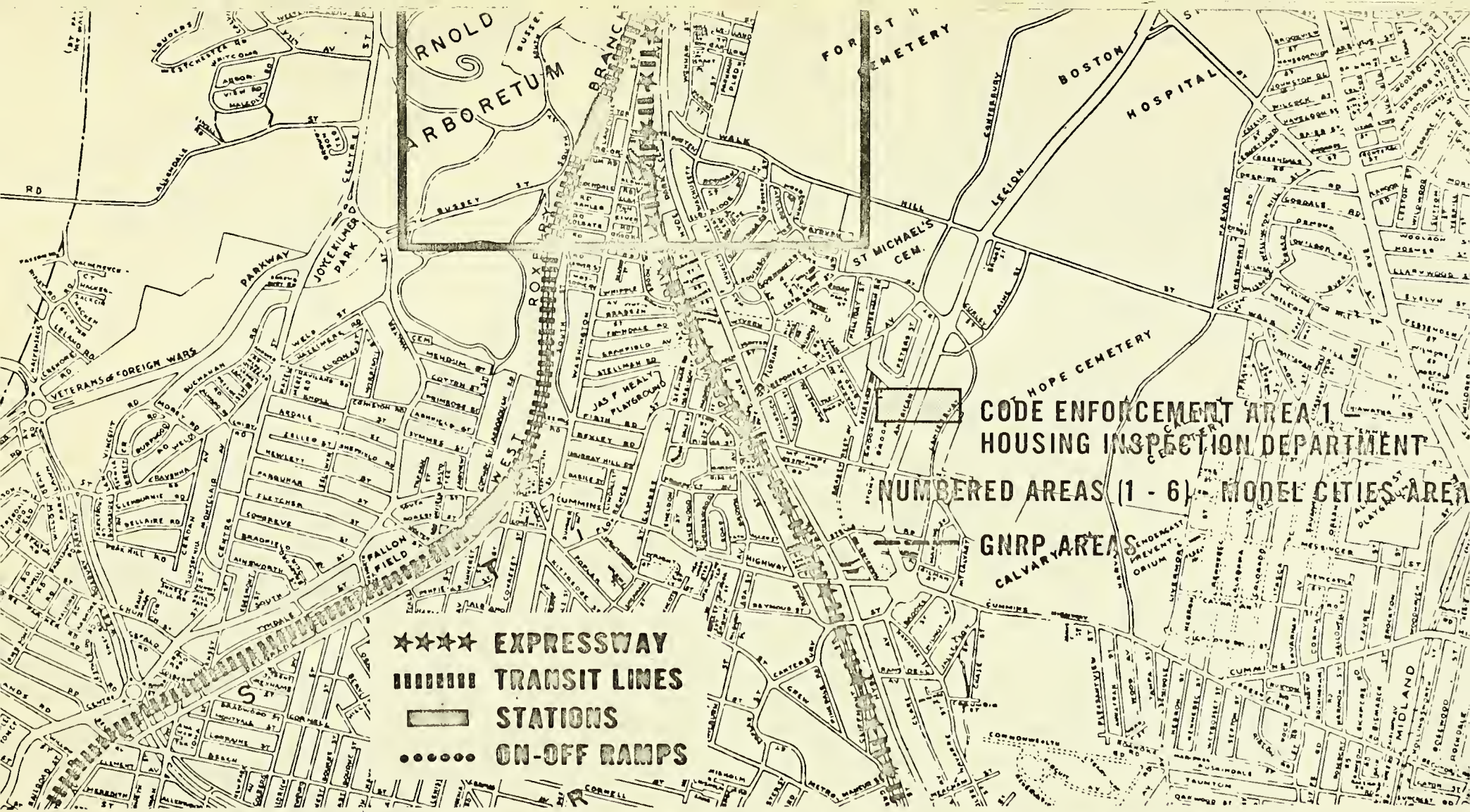
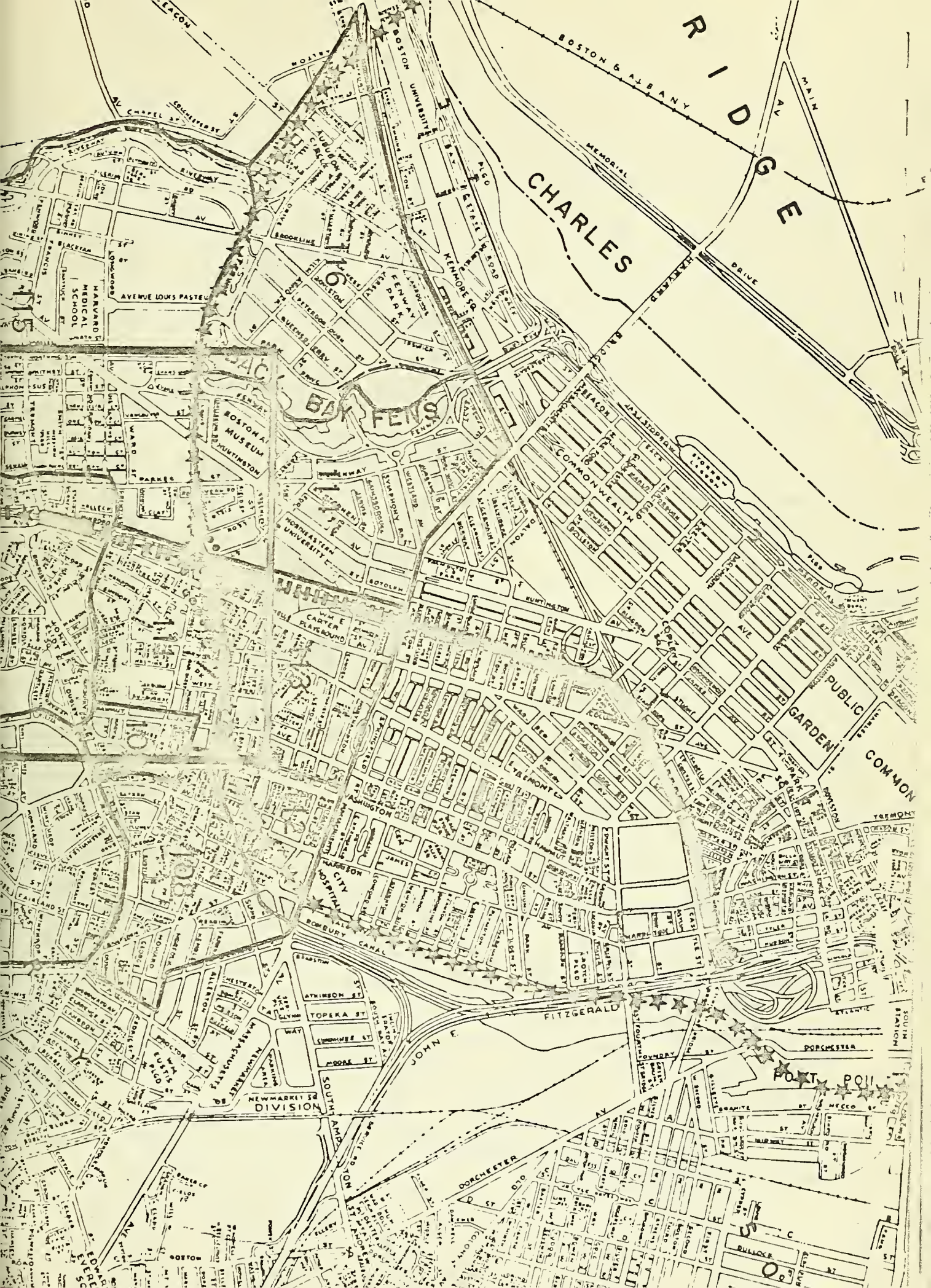
PARK PLAYGROUND



MAP 3 - PROGRAM AREAS IN SOUTHWEST STUDY AREA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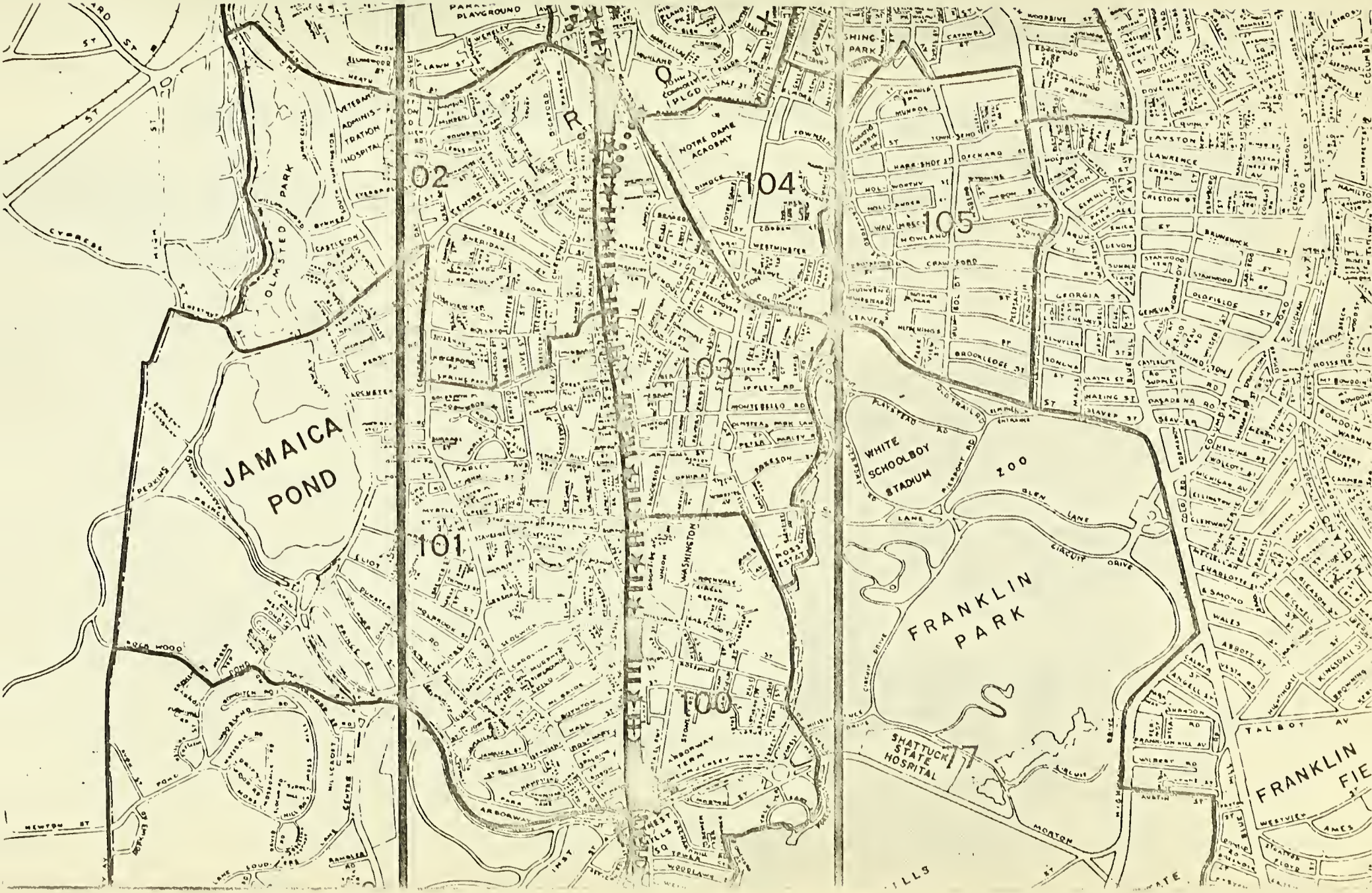
BOSTON & ALBANY
MEMORIAL
DRIVE
BOSTON UNIVERSITY
KENMORE SQ
FENWAY PARK
BACK BAY FENS
COMMONWEALTH
PUBLIC GARDEN
COMMON
BOSTON MUSEUM
HARVARD MEDICAL SCHOOL
NORTHEASTERN UNIVERSITY
CITY HOSPITAL
BOMBAY CANAL
FITZGERALD
JOHN F.
DIVISION
DORCHESTER
SOUTH STATION
POST OFFICE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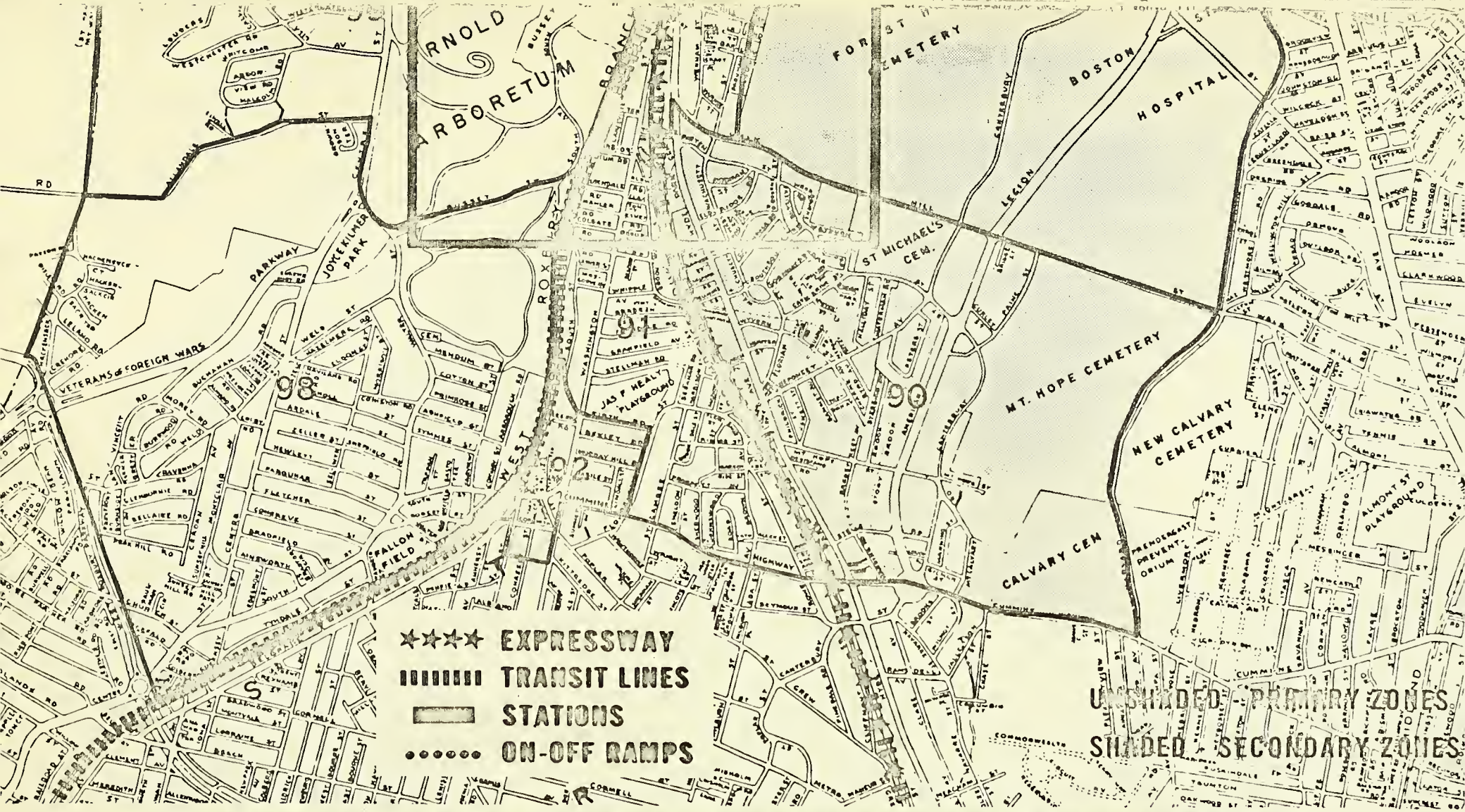
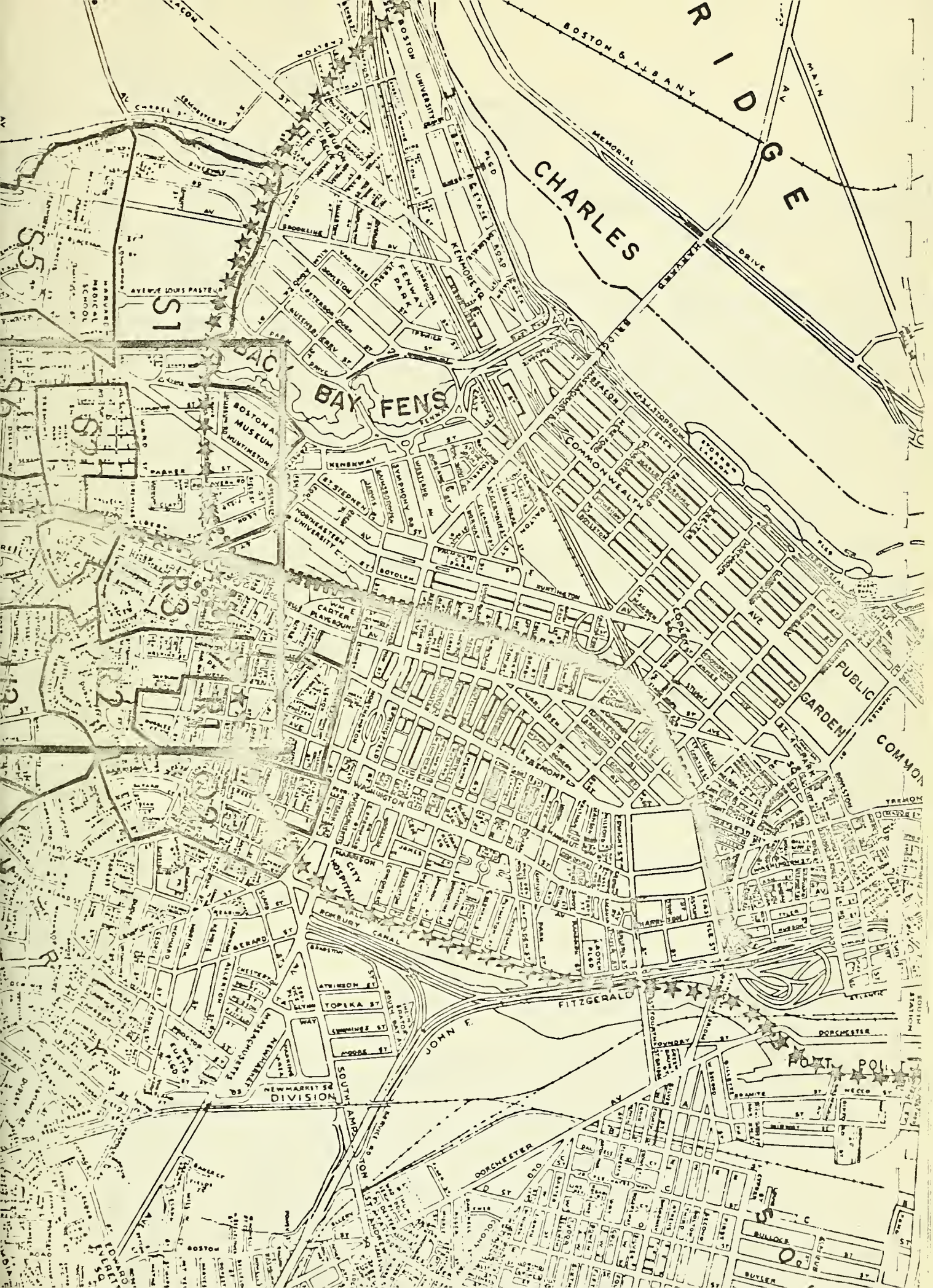
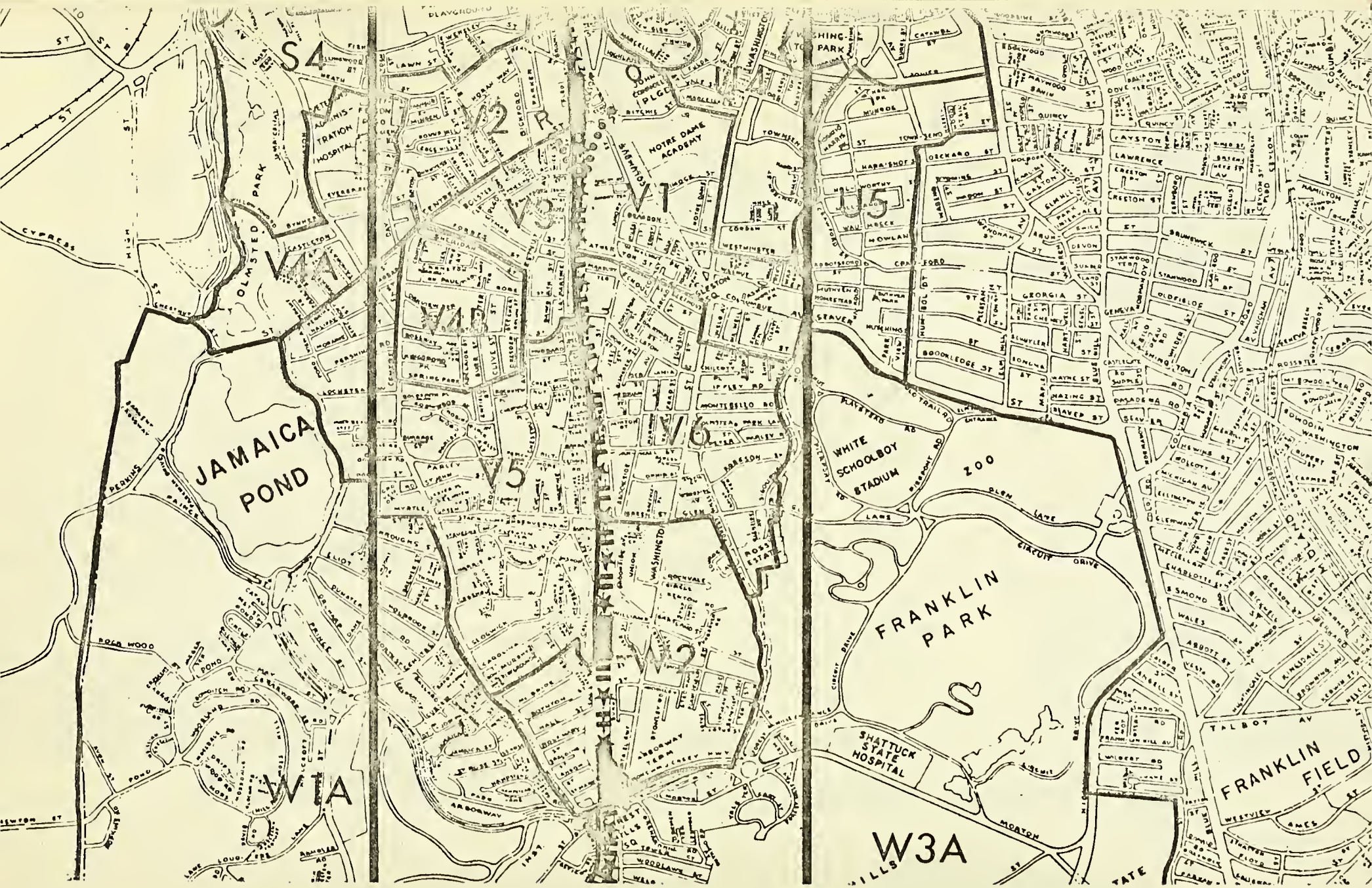
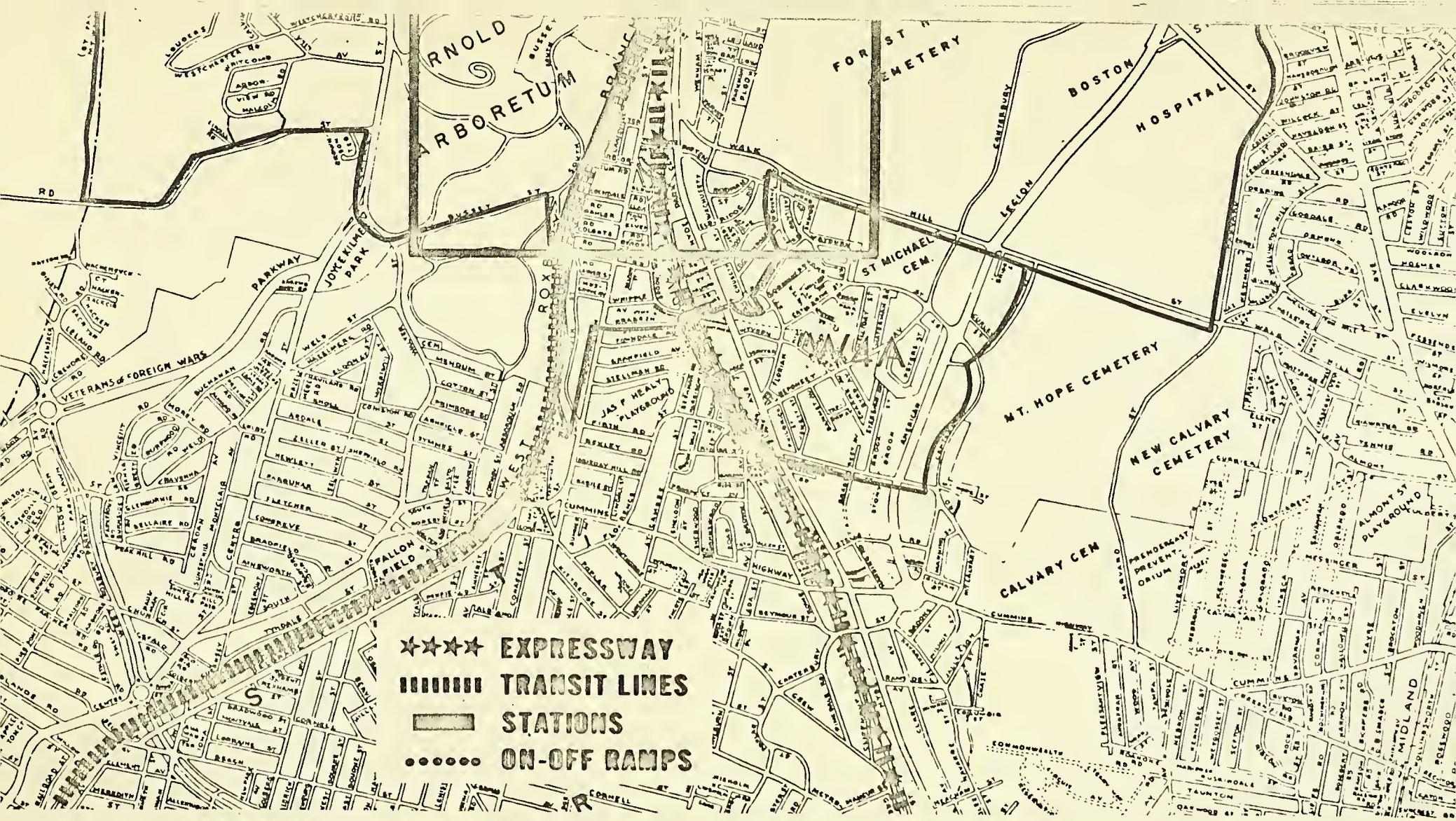
FRANKLIN PARK
WHITE SCHOOLBOY STADIUM
ZOO
SHATTUCK STATE HOSPITAL
OLMSTED PARK
NOTRE DAME ACADEMY
102
104
105
101
103
100
FRANKLIN FIE



MAP 4 - TRAFFIC ZONES IN SOUTHWEST STUDY AREA


CHARLES
BAY FENS
BOSTON & ALBANY
MEMORIAL
DRIVE
BOSTON UNIVERSITY
KENMORE SQ.
FENWAY PARK
BOSTON MUSEUM
COMMONWEALTH
PUBLIC GARDEN
COMMON
WASHINGTON
HARRISON
CITY HOSPITAL
ROXBURY CANAL
FITZGERALD
JOHN F.
DORCHESTER
NEWMARKET SQ
DIVISION
SOUTH
TOPEKA ST
MASSACHUSETTS
HARVARD MEDICAL SCHOOL
NORTHEASTERN UNIVERSITY
SYMPHONY RD
BOYLSTON
TREMONT
MAIN
AV
RIDGE


S4
V4
V4A
V4B
V2
V3
V1
V5
V6
W2
W1A
U5
JAMAICA POND
FRANKLIN PARK
WHITE SCHOOLBOY STADIUM
ZOO
SHATTUCK STATE HOSPITAL
FRANKLIN FIELD
W3A
OLMSTED PARK
NOTRE DAME ACADEMY
JOHN CONNOLLY PLGD
PLAYGROUND
ADMINISTRATION HOSPITAL
CYPRESS ST
PERKINS ST
ELIOT
ROSLINDALE
ARBORWAY
WASHINGTON
GEORGIA ST
BOOKLEDGE ST
CIRCUIT DRIVE
MORTON
WESTVIEW
TALBOT AV



MAP 5 - CENSUS TRACTS IN SOUTHWEST STUDY AREA

Table A-1. POPULATION FOR BOSTON METRO AND CITY, 1960-1967

Year	Metro	City 1/
	----------Thousands----------	
1960	3,109.2	791.3
1967	3,249.8	703.9
Change	+140.6	-87.4
% Change	4.5%	-11.0%

Source: Population Estimates, U.S. Department of Commerce. 1968

1/ Suffolk County

Table A-2. EMPLOYMENT FOR BOSTON, SMSA 1960-1967
BY MAJOR INDUSTRIES
(employees in thousands)

jor Industries	1960	1961	1962	1963	1964	1965	1966	1967
ıstruction	46.8	45.5	47.2	48.4	50.2	50.5	50.3	51.1
ıufacturing	303.8	298.9	294.0	284.6	275.5	284.1	299.4	304.6
ısportation & Public Utilities	68.0	65.9	65.7	66.0	65.9	66.6	67.4	69.6
ɔlesale & Retail Trade	240.9	243.5	245.2	244.6	249.1	255.7	265.4	268.1
ɔnce, Insurance & Real Estate	73.5	75.2	75.9	76.7	77.6	78.8	81.1	83.3
·ices & Mining	201.2	211.1	220.0	227.5	233.8	247.7	263.4	279.1
·ernment	140.6	141.6	144.3	150.5	153.8	156.9	161.0	166.1
Total	1,074.8	1,081.7	1,092.3	1,098.3	1,105.9	1,140.3	1,188.0	1,221.9

ce: Employment and Earnings Statistics - 1968, Bureau of Labor Statistics

Table A-3. EMPLOYEES BY RESIDENCE AND INDUSTRY IN THE STUDY AREA (CENSUS TRACT) AND THE CITY OF BOSTON, 1960

	Study Area		City of Boston	
	Number	%	Number	%
Total Employment	45,035	100%	288,246	100%
Manufacturing and Construction	12,295	27	82,821	28
Transportation	1,864	4	24,504	11
Services	15,679	35	64,856	22
Professional	7, 47	16	62,373	24
Other	8,150	18	43,692	15

Source: Census of Population, 1960

Table A-4. EMPLOYMENT BY INDUSTRY FOR THE CITY OF BOSTON

	1950	1960	1963
Construction	19,724	16,851	17,035
Manufacturing	101,279	87,309	79,770
Transportation, Communication and Utilities	47,656	39,025	35,715
Wholesale and Retail	135,915	122,155	116,144
Finance, Insurance and Real Estate	32,508	53,526	56,704
Services and Mining	61,704	75,892	78,383
Government	85,307	95,673	95,718
Total	484,093	490,431	479,469

Source: Department of Employment Security

TABLE A-5. EMPLOYMENT BY INDUSTRY IN THE PRIMARY AND SECONDARY SUB-AREAS OF THE STUDY AREA, 1963*

	Primary	Secondary	Pri. + Sec.	Proportion of City		
				Primary	Secondary	Pri. + Sec.
nstruction	787	561	1,348	4.6%	3.2%	7.8%
nufacturing	5,262	5,197	10,459	6.5%	6.5%	13.0%
ansportation, Communications & Utilities	980	2,622	3,602	2.7%	7.3%	10.0%
olesale & Retail	2,107	8,462	10,569	1.8%	7.2%	9.0%
nance, Insurance & Real Estate	51	641	692	.1%	1.1%	1.2%
rvices	13,471	5,351	18,822	17.1%	6.8%	23.9%
vernment	1,166	694	1,860	1.2%	.7%	1.9%
Total	23,824	23,528	47,352	4.9%	4.9%	9.8%

ee Map 4 for definition of Primary and Secondary areas.

urce: Department of Employment Security

Table A-6. NUMBER EMPLOYED AND NUMBER OF ESTABLISHMENTS
SOUTHWEST CORRIDOR STUDY AREA, 1968

	No. of Firms	No. of Employees
MANUFACTURING		
Food and Related	13	344
Textile and Apparel	28	4,350
Wood, Stone, Clay & Glass Products	25	1,120
Natural Chemical & Synthetic Products	27	860
Metals, Machinery & Instruments	55	2,920
Total	142	9,594
NON-MANUFACTURING		
Trucking	15	NA
Warehousing	10	NA
Contractors	20	NA
Utilities, Fuel & Transportation	4	NA
Total	49	NA
Grand Total	191	

Source: BRA Material

Table A-7. FAMILY INCOME DISTRIBUTION FOR CENSUS TRACTS IN THE STUDY AREA AND FOR THE CITY OF BOSTON, 1960

Income Categories	Study Area		City	
	Number of Families	Percent Distribution	Number of Families	Percent Distribution
Under $1,000	1,256	4.7%	5,698	3.5
$1,000-1,999	2,072	7.7	9,432	5.7
$2,000-2,999	2,462	9.2	12,229	7.4
$3,000-3,999	3,029	11.4	16,256	9.9
$4,000-4,999	3,340	12.5	20,331	12.4
$5,000-5,999	3,623	13.6	24,306	14.8
$6,000-6,999	2,856	10.7	19,053	11.6
$7,000-7,999	2,128	8.0	15,080	9.2
$8,000-8,999	1,664	6.2	11,387	6.9
$9,000-9,999	1,081	4.0	8,129	5.0
$10,000-14,000	2,465	9.2	16,869	10.3
$15,000-24,999	642	2.5	4,428	2.7
$25,000 & over	82	.3	1,017	.6
Total	26,699	100.0%	164,215	100.0%

Median Income:
Study Area - $5,330
City of Boston $5,747

Source: Census of Population, 1960

Table A-8. POPULATION IN THE PRIMARY AND SECONDARY SUB-AREAS OF THE STUDY AREA, 1963

Traffic Zones	Population
A. Primary:	
91	6,587
98	8,297
99	1,647
100	7,178
101	16,264
102	16,074
103	8,264
104	4,064
110	8,619
111	2,792
115	19,509
Total Primary	99,295
B. Secondary:	
77	47
90	6,063
92	1,094
105	12,031
106	15,420
108	5,162
109	705
112	924
113	6,439
114	10,226
116	8,762
Total Secondary	66,783
Total Study Area	166,078

Source: Origin and Destination Report - Department of Public Works.

Table A-9. CHARACTERISTICS OF HOUSEHOLDS IN RIGHT-OF-WAY, SOUTHWEST CORRIDOR PROJECT, 1968 [1/]

	Number of Households	Percent of Total Households
Race		
White	411	72.6%
Negro	131	23.1
Puerto-Rican	23	4.1
Chinese	1	.2
TOTAL	566	100.0%
Home Ownership		
Tenant	419	73.4%
Owner	147	26.6
TOTAL	566	100.0%
Unemployed	35	6.2%
On Welfare	129	22.8%
Eligible for Public Housing		
Number of Families	158	2/
Number of Individuals	123	3/

1/ Based on people who contacted the Relocation Center prior to 1969 -- includes primary home owners.

2/ 40.3 percent of total families.

3/ 70.7 percent of all individuals.

Source: Sample from BRA Relocation Center, Vernon. An estimated 700 families have been and will be replaced based on data from DPW, February, 1969.

$$\text{Impact Index} = \frac{700}{25,000} = 2.4\%$$

Table A-10. COMMERCIAL CENTERS IN THE SOUTHWEST CORRIDOR STUDY AREA

Location	No. of Stores	Approximate Size (sq. ft.)
*Tremont and Ruggles	45	45,000
Huntington and Longwood	17	17,000
*Tremont and Columbus (Roxbury Crossing)	99	107,000
Roxbury and Centre	20	20,000
*Centre and Columbus (Jackson Square)	44	44,000
Washington and Marcella	44	44,000
Centre and Bickford	22	25,000
Centre and Perkins	79	79,000
Washington and Columbus (Egleston Square)	80	97,000
Centre and Boylston	38	44,000
*Boylston and Lamartine	37	37,000
Green and Washington	49	52,000
Centre and Burroughs (J. P. Center)	131	132,000
Washington and Williams	17	18,000
South and Hall	48	48,000
*Washington and Hyde Park Avenue (Forest Hills)	44	65,000
Hyde Park Avenue and Eldridge	12	12,000
Washington and Archdale	27	27,000
Washington and Dudley (Dudley Station)	534	700,000
Total	1,387	1,613,000
Right of Way total	269	298,000
Balance	1,118	1,315,000

* - Within Right-of-Way

Source: Boston GlobeStudy (1962)

NOTE: Average Size = 1,200 square feet per store.

Table A-11. COMMERCIAL CENTERS BY TYPE OF STORE
SOUTHWEST CORRIDOR STUDY AREA

Location	Number of Stores				Approximate Size (Sq.Ft.)
	Commerical Goods	Shopping Goods	Services	Total	
Tremont & Ruggles	14	8	23	45	45,000
Huntington & Longwood	6	5	6	17	17,000
Tremont & Columbus (Roxbury Crossing)	29	37	33	99	107,000
Roxbury & Centre	9	3	8	20	20,000
Centre & Columbus (Jackson Square)	15	14	15	44	44,000
Washington & Marcella	24	7	13	44	44,000
Centre & Bickford	8	6	8	22	25,000
Centre & Perkins	23	21	33	79	79,000
Washington & Columbus (Egleston Square)	25	23	32	80	97,000
Centre & Boylston	14	5	19	38	44,000
Boylston & Lamartine	10	5	22	37	37,000
Green & Washington	17	12	20	49	52,000
Centre & Burroughs (J.P. Center)	33	45	53	131	132,000
Washington & Williams	7	5	5	17	18,000
South & Hall	20	8	20	48	48,000
Washington & Hyde Park Ave. (Forest Hills)	12	12	20	44	65,000
Hyde Park Ave & Eldridge	6	0	6	12	12,000
Washington & Archdale	14	2	11	27	27,000
Washington & Dudley (Dudley Station)	136	195	203	534	700,000
Total	424	413	550	1,387	1,613,000

TABLE A-12. COMMERCIAL AND INDUSTRIAL ESTABLISHMENTS IN THE STUDY AREA RIGHT-OF-WAY, 1963

	Number of Establishments	Number of Employees	Square Feet of Building Space
nufacturing	27	547	234,950
tail-Services	104	682	395,250
tomotive	40	165	77,500
olesale-Warehouse	32	247	271,100
ntracting	4	23	11,200
Total	207	1,664 [1/]	990.000

Impact Index = $\frac{1,664}{19,000}$ = 8.7%.

urce: Materials from BRA.

Table A-13. COMMERCIAL AND INDUSTRIAL ESTABLISHMENTS IN RIGHT-OF-WAY OF SOUTHWEST CORRIDOR STUDY AREA BY LOCATION, 1963

	Number of Establishments	Number of Employees	Sq. Ft. of Building Space
ROXBURY CROSSING			
Manufacturing	19	277	116,750
Retail-Services	59	326	245,050
Automotive	15	42	26,900
Wholesale-Warehouse	22	184	157,100
Contracting	2	13	8,200
Total	117	842	454,000
JACKSON SQUARE			
Manufacturing	6	85	61,800
Retail-Services	26	234	76,700
Automotive	7	23	11,800
Wholesale-Warehouse	2	11	20,200
Contracting	1	10	3,000
Total	42	363	173,500
JAMAICA PLAIN			
Manufacturing	-	-	-
Retail-Service	4	23	17,400
Automotive	5	30	7,900
Wholesale-Warehouse	3	10	10,000
Contracting	1	NA	NA
Total	13	63	35,300
FOREST HILLS			
Manufacturing	2	185	56,400
Retail-Services	9	88	47,500
Automotive	10	42	16,100
Wholesale-Warehouse	5	42	83,800
Contracting	-	-	-
Total	26	357	203,800

Table A-13. COMMERCIAL AND INDUSTRIAL ESTABLISHMENTS IN RIGHT-OF-WAY (Cont'd)
OF SOUTHWEST CORRIDOR STUDY AREA BY LOCATION, 1963

	Number of Establishments	Number of Employees	Sq. Ft. of Building Space
ROSLINDALE			
Manufacturing	-	-	-
Retail-Services	6	11	8,600
Automotive	3	28	14,800
Wholesale-Warehouse	-	-	-
Contracting	-	-	-
Total	9	39	23,400
Grand Total	207	1,664	990,000

Source: BRA Materials

Table 14. DWELLING UNITS BY TYPE FOR THE STUDY AREA, 1968 [1]

	Number of Dwelling Units	Percent Distribution
1 Family Units	3,080	12%
2 Family Units	3,740	15%
3-4 Family Units	13,420	54%
5+ Family Units [2]	1,260	19%
Public Housing	3,500	
Total	25,000	100%

1/ 10% Vacancy Rate
2/ Excluding Public Housing

Proposed "infill" Program-102 units started 1969.

Existing 221 D-3	938 units
Proposed 221 D-3	833 units
Total 221 D-3	1,771 units

Source: BRA Materials.

Table A-15. AGE OF RESIDENTIAL STRUCTURES IN CENSUS TRACTS OF STUDY AREA

Census Tract	1950-1960	1940-1949	1969 or earlier	Total Structures
Q2	-	362	649	1,011
R1	25	366	1,556	1,947
R2	-	15	781	796
R3	175	4	818	997
S1	526	84	1,293	1,903
S2	4	799	438	1,241
S3	-	3	1,252	1,255
S4	23	4	1,038	1,065
S5	3	13	1,742	1,758
S6	-	-	1,280	1,280
U2	3	16	1,458	1,477
U3	-	-	1,228	1,228
U4	10	14	1,471	1,495
U5	26	-	2,327	2,353
V1	9	-	1,351	1,360
V2	643	49	1,056	1,748
V3	-	-	989	989
V4A	20	7	658	685
V4B	-	-	1,067	1,067
V5	18	32	2,368	2,418
V6	16	-	1,936	1,952
W1A	357	101	1,760	2,218
W2	11	24	1,277	1,312
W3A	413	32	1,745	2,190
W4A	64	70	595	729
Total	2,346	1,995	32,133	36,474

Source: Census of Housing, 1960

Table A-16. CONDITION OF HOUSES IN CENSUS TRACT OF STUDY AREA, 1960

Census Tract	Sound			Deteriorating			Dilapidated
	With all Plumbing	Lacking Hot Water	Lacking Other Plumbing	With all Plumbing	Lacking Hot Water	Lacking Other Plumbing	
Q2	514	4	23	247	24	34	165
R1	673	111	17	637	140	23	346
R2	243	10	5	236	36	18	254
R3	266	33	6	190	110	14	378
S1	1,847	5	22	15	6	-	8
S2	900	3	2	224	10	13	89
S3	419	49	9	416	124	28	210
S4	490	12	16	430	35	8	74
S5	1,603	10	6	108	11	1	19
S6	774	17	33	233	9	4	210
U2	562	17	32	696	16	41	218
U3	797	41	17	369	41	28	184
U4	401	4	15	631	28	37	112
U5	594	1	12	699	5	9	175
V1	969	14	21	239	11	28	78
V2	1,584	2	8	143	1	2	8
V3	463	9	6	363	12	6	130
V4A	623	-	1	57	1	-	3
V4B	878	2	6	175	3	3	-
V5	2,135	36	35	107	10	14	81
V6	1,170	6	20	526	8	19	203
W1A	2,075	3	9	116	7	2	1
W2	652	-	-	419	3	1	237
W3A	1,939	21	23	163	7	2	40
W4A	642	-	5	76	-	5	1
Total	23,213	410	349	7,515	658	340	3,224

Source: Census of Housing, 1960

Table A-17. EXISTING AND PROPOSED PUBLIC HOUSING IN AND NEAR THE SOUTHWEST CORRIDOR STUDY AREA, 1968

Name of Project	Family Units	Elderly Units	Date Occupied	District
Existing:				
Heath Street	420	0	Feb.1942	Jamaica Plain
Bromley Park	732	0	June, 1954	Jamaica Plain
Bickford Street	0	64	Sept, 1962	Jamaica Plain
Jamaica Pond	0	44	Sept, 1962	Jamaica Plain
South Street	132	0	Aug, 1953	Jamaica Plain
Mission Hill	1023	0	Dec, 1940	Parker Hill-Fenway
Mission Hill Ext.	588	0	Aug, 1952	Parker Hill-Fenway
Archdale	288	0	Oct, 1951	Roslindale
*Orchard Park	774	0	Nov, 1942	Roxbury, N. Dorchester
Whittier Street	200	0	May, 1953	Roxbury, N. Dorchester
*Lenox Street	306	0	Dec, 1940	South End
*Camden Street	72	0	Oct, 1949	South End
Total	4,535	108		
Proposed:				
Forest Hills	0	140		Roslindale
Highland Park	43	0		Roxbury N. Dorchester
Walnut Park	0	168		Roxbury, N. Dorchester
Total	43	308		
TOTAL	4,578	416		

* Projects just outside the Study area.

Source: BRA Material

Table A-18. MIDDLE INCOME HOUSING (221D-3) EXISTING & PROPOSED IN AND NEAR THE SOUTHWEST CORRIDOR STUDY AREA, 1968.

	Name of Development	Dwelling Units	Project Area
Existing			
	Academy Homes II	316	Washington Park
	Charlame Park II	38	Washington Park
	Westminister Court	70	Washington Park
	Warren Gardens	228	Washington Park
	Forest Hills	108	Jamaica Plain
	*Florence Apts	138	Roslindale
	Cedar St Co-op	40	Roxbury-No. Dorchester
Subtotal		938	
Proposed			
	Site C-5	140	Washington Park
	*Site 21	63	South End
	*Site 22	160	South End
	*Site 23	135	South End
	*Site 24	135	South End
	*Site 16	200	South End
Subtotal		833	
Total		1,771	

*Near the study area.

Source: BRA Materials

Table A-19. "INFILL" HOUSING TO BE CONSTRUCTED IN 1969 IN THE SOUTHWEST CORRIDOR STUDY AREA 1/

	Size of Parcel (Sq. Ft.)	Number of Dwelling Units
A. Parker Hill Area		
	7,103	8
	16,361	8
	11,602	6
	25,749	14
	6,520	4
	4,657	4
	2,801	2
Subtotal	74,793	46
B. Jamaica Plain Area		
	2,990	4
	4,952	4
	2,976	2
	7,347	6
	15,625	14
	5,891	4
	2,610	4
	3,600	2
Subtotal	45,991	40
C. Roslindale Area		
	3,780	4
	3,784	4
	3,500	4
	3,960	2
	1,445	2
Subtotal	16,469	16
Total	137,253	102

Source: BRA Material

1/ In addition 26 units will be constructed on 3 sites in Model City area and 52 units on 2 sites in Washington Park Renewal Area.

Table A-20. PROGRAMMED PUBLIC FACILITIES
IN THE SOUTHWEST CORRIDOR STUDY AREA

Project and Address	Comments
Bussey Institute Forest Hills area, Arnold Arboretum	Site contains about 20 acres. Will be a vocational high school and a technical institute.
Heath Street School Heath and Day	Site-4.7 acres adjacent to 4.5 acre public playground. A replacement for Jefferson and Bulfinch schools - open Fall, 1971.
Campus High School Near Vernon and Shawmut	Site contains 35 acres - open Fall, 1972 or 1973.
Theodore Roosevelt School near Egleston Square	In process.
Agassing/Ellis Mendel Districts (5) Brookside and Cornwall (6) Near South and St. Joseph Streets	In process.
Mary Curley addition near Pershing Road and Centre Street	Site size not different, will use city-owned land in rear of Curley School

Table A-21. EXISTING PUBLIC FACILITIES

IN THE SOUTHWEST CORRIDOR STUDY AREA

Name of Facility	Address
Libraries	
Parker Hill Library	1497 Tremont Street
Connolly Library (J.P.)	433 Centre Street
Egleston Square	2044 Columbus Avenue
Jamaica Plain Library	12 Sedgwick Street
Fire Stations	
Huntington Avenue Fire Station	560 Huntington Avenue
Roxbury Centre Street Station	27 Centre Street
Roxbury Bragdon Street Station	1870 Columbus Avenue
Jamaica Plain Ladder Co. 10	659 Centre Street
Police Stations	
Roxbury Police Station 10	1170 Columbus Avenue
Jamaica Plain Station 13	28 Seaverns Street
Courts	
Roxbury Municipal Court	88 Roxbury Street
West Roxbury District Court	445 Arborway
Welfare	
Welfare Clinic	1491 Tremont Street
Municipal Buildings	
Tobin Municipal Building	1491 Tremont Street
Curtis Hall Municipal Building	20 South Street
Post Offices	
	Roxbury Street
	Tremont Street
	Centre Street
Public Works	
Garage, Paving Service Yard, Sanitary Division Yard	280 Highland Street
Sewage Pumping Station	Vancouver-Ward Streets

Table A-21. EXISTING PUBLIC FACILITIES (Cont'd)

IN THE SOUTHWEST CORRIDOR STUDY AREA

Name of Facility	Address
Health	
Health Clinic	120 Whittier Street
Health Clinic	20 South Street
Bussey Institute	South Street
Public Bath	
Cabot Street Public Bath (Will be demolished in Campus High project)	Downing Street

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